









# *The* STONE AGE *on the* PRAIRIES

— by —

W. J. ORCHARD

*First President of  
The Saskatchewan Archaeological Society*

*Dedicated to the memory of my dear  
wife, whose bright companionship, wise  
ideas, and keen intuitions were always a  
delight and an inspiration.*



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REGINA AND TORONTO



## Unwritten History

Beneath Saskatchewan's sultry summer sun,  
O'er desert fields denuded of their loam,  
I wander mid the shifting sand, gray, dun,  
See relics of a vanished race's home.

Here are the ashes of their ancient fires,  
Kindled by spark from flint and iron stone,  
To give the warmth and comfort man desires;  
Fields here are littered by remains of shattered bone.

Devoid of metals, precedent unknown,  
To meet the insistent needs of every day,  
He chipped his tools from flint, he sharpened bone,  
His axe of stone was hafted in quite ingenious way.

Perchance the man who made this uncouth tool  
Saw mammoths shuffling down the grassy glade;  
Doubtless for salmon shining in the pool,  
This many-toothed harpoon of bone was made.

No graphic symbols have the story told,  
Of his heroic struggles to survive;  
We read the coded message from the things we hold  
Of how he fought and won the right to live.

We trample o'er his hearths, his sepulchres, his tools,  
We scorn the simple, savage life he led.  
If he could speak, he'd call us modern fools,  
Who cannot see the path we ought to tread.

W. J. O.



## Preface

Pope in his "Essay on Man" says "The proper study of mankind is man." I do not suppose he was thinking especially of that branch of the study of man which deals with prehistoric man, although he does refer to the time when man was "content to be", when he was guided not only by his own instinct but by the instinct of other creatures as to what things were good to eat, what were good for medicine, and in short, how to live in a state of nature devoid of almost all that we consider necessities.

But what can be more fascinating than to try to decipher the beginnings of human existence by studying the rude tools and ornaments, the cave dwellings and sepulchres, and the ancient drawings, sculpture, and monuments which are the only records available for a study of man from the stage of theolith up to the Bronze Age?

This little work embodies the author's observations and collections of relics of the stone ages in Saskatchewan during over forty years' residence here, together with comparisons with some of the relics of other countries, and theories and deductions therefrom.

Up to the present it has not been generally admitted that any culture preceding the Magdalenian is represented on the American continent. It has been a fond dream of the writer to discover relics of earlier cultures perhaps as far back as the Mousterian or even Chellean, and I think this little book shows some realization of that dream.

To the person who may read this book merely as a record of curious things found in this province without any regard to scientific classifications I can give the assurance that all the specimens described or illustrated are authentic. I hope the illustrations will be found interesting.

They are practically all from original photographs of my own specimens. A few are made from specimens loaned by some of my friends who are collectors and I wish to thank all who have assisted me in this or any other way, especially those who have given me specimens or exchanged them with me through many years.

If the reader does not accept all the author's theories he will at least have much authentic material on which to base his own theories. It is also hoped that those who are collectors will find this little album of antiquities useful for comparison.

I am greatly indebted to the works of the many distinguished writers whose books have given me a background. They are too numerous to mention here, but a bibliography of some of them will be found at the back of the book.

As the artifacts of Manitoba and Alberta are very similar to those of Saskatchewan, this book will be found as useful to students or collectors in those provinces as to those of Saskatchewan.

If the reader wishes to get a true idea of the size of any specimen shown in any of the illustrations he must compare its size in the picture with the two-inch measure which was photographed with it in the same picture. If the object is twice as long as the measure, then he can be sure it is four inches long, and can visualize the size by measuring four inches on the page.

W. J. ORCHARD.

Regina, April, 1942.

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## THE STONE AGE ON THE PRAIRIES

When the white men first came to Canada they found the inhabitants using, almost exclusively, stone tools. They had not yet learned how to get iron from ore, or to work it, although in one or two places where they found lumps of pure native copper they had succeeded in hammering them into knives or spear heads, but this was very rare. When a people use only stone tools we say they are living in a stone age culture. Since the spread of the white races, the use of metal has become universal, and very few stone tools are now used. People had lived in a stone age culture for many thousands of years, both here and in practically all parts of the world, and in a few cases such as in Patagonia, Central Africa, and in the wilder parts of Australia they are still in that stage.

Although for many years the people of this continent have ceased to use stone tools to any extent, we still find many of these ancient tools scattered over the surface of the ground or buried at various depths in the earth, whence they are turned up by the plow, uncovered by devastating winds or floods, and sometimes found in excavations for buildings, roads, or for gravel pits.

People in Canada generally call all these things Indian relics, which in many cases is a misnomer, for while it is probably true that many of the later ones were used by the Indians, even for some time after the white man came, yet there is good reason to believe that a large part of the older, cruder forms were made and used by people who preceded the Indians by many hundreds, perhaps thousands of years.

Scientists have divided the stone age into two main divisions, the old stone age (Paleolithic) and the new



stone age (Neolithic). The things which mark the new stone age as distinct from the old stone age are as follows:

- (1) In the Neolithic age man first used polished stone implements, partly or wholly shaped and polished by rubbing on sandstone or other abrasives, although they still did some very fine chipping in flint.
- (2) They began to make rude pottery.
- (3) They cultivated the soil to grow food.
- (4) They began to domesticate animals.
- (5) These changes in their way of life led to more settled communities and more permanent homes.
- (6) I think we may also include, as a new development of this age, visible representations of their objects of worship.

As all these things were in full effect when this continent was discovered, we may assume that at least in the northern half of the continent there was a Neolithic civilization. We would also be justified in calling it prehistoric because there were no written records before the arrival of the white men. Of course, there was a kind of written record in hieroglyphics of the Mayan, Aztec, and Toltec peoples of Mexico and Central America, but this civilization was entirely distinct from that of the peoples farther north. We know that any form of written language among our present Indians was invented for them by missionaries who came to labor among them, notably the Cree script by Mr. Evans.

If we seek to understand our phase of Neolithic civilization by a study of the relics found here, we shall see that "necessity was the mother of invention," that every tool was made for a particular use, and that one invention led to another.



F.

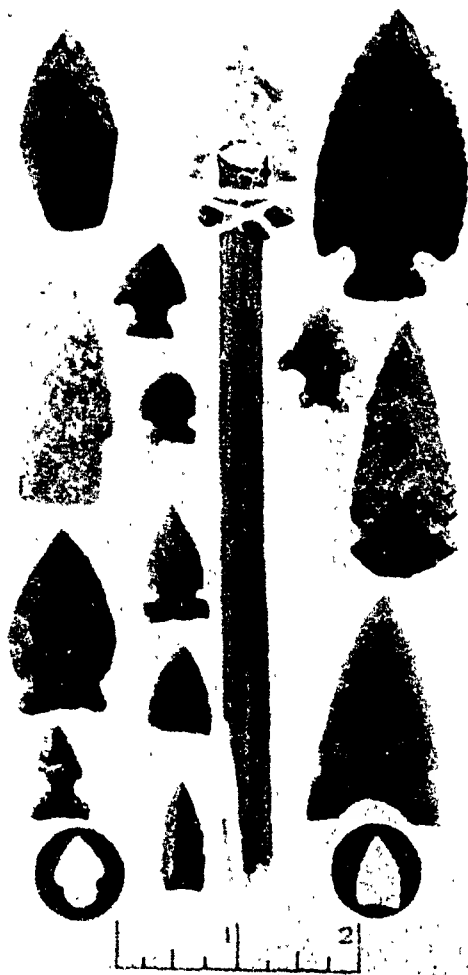


Fig. 2

During Paleolithic times, the people lived by hunting. They used the flesh of animals for food and made clothing from the hides. It is true that they ate nuts, roots, and berries, as well as shell fish and the nice fat white grubs which we leave to the woodpeckers, but still their main dependence was on the chase. When men first began to kill animals they would feel the need of some means of inflicting a wound on the animal without allowing it to come within reach of them. The most obvious device would be a long piece of wood sharpened to a point; in other words, a wooden spear. Then the new and brilliant thought came that a sharp point of stone fastened at the end of the staff would make it more effective. At first these points were of no particular shape, but when once man set out to improve them by knocking off superfluous parts he learned in a few generations to chip them to a pattern and produced sharp, symmetrical spear points. In southwestern Europe a number of very fine spear heads have been found, which the scientists declare to be fifteen thousand or more years old and which they describe as being of willow leaf or laurel leaf shape. These spear heads vary in size from two inches to an extreme length of thirteen inches, although usually much less than the latter.

Strange as it may seem, we find some spear heads of exactly the same pattern and of just as clever workmanship on fields in Saskatchewan, where the upper soil has drifted off to a depth of two or three and in some cases as much as eight or ten feet. A picture of these Saskatchewan specimens is shown in Fig. 1. In "Human Origins", by Geo. Grant McCurdy, there is a fine picture of the European specimens. By comparing them according to scale, it will be seen that one laurel leaf specimen is six and a half inches long, which is the exact length of the largest one in our

Fig. 3



Folsom Points

illustration. No. 1 comes from a drifted field near Tribune, Sask., found by Mr. A. D. Foulkes; No. 2 from south of Indian Head; No. 3 from Ponteix; No. 4 from south of Meyronne; and No. 5 from Snowdy Springs, near Moose Jaw, found by Mr. Armstrong. This last is a "rolled specimen"; that is, in the movements of nature it has had all its sharp edges smoothed off.

Even yet it was decidedly risky to face a fierce animal with the best spear that men could make, and finally the idea was conceived of making a small, flint-pointed spear which could be propelled through the air to kill an animal at a distance—that is, they invented the bow and arrow. All over these western plains, we find many arrow heads of rare beauty of form and material, chipped from flint, chert, chalcedony, jasper, quartz, and jadeite of most beautiful colors and showing marvellous skill in the workmanship. Some of these are so small as to lie well within the borders of a one-cent piece. These small ones may have been used to kill birds or small game.

Most of the arrow points have nicks on each side of the base to keep them from slipping when tied at the end of a shaft by a sinew or thong which passes round the end of the shaft and through the nicks. A few are triangular with no nicks but having a chisel-edged base to fit into a split at the end of the shaft. A few have a square base slightly narrower than the rest of the arrow. See Fig. 2 for types and method of attachment to the shaft. Two small heads are laid on one-cent coins.

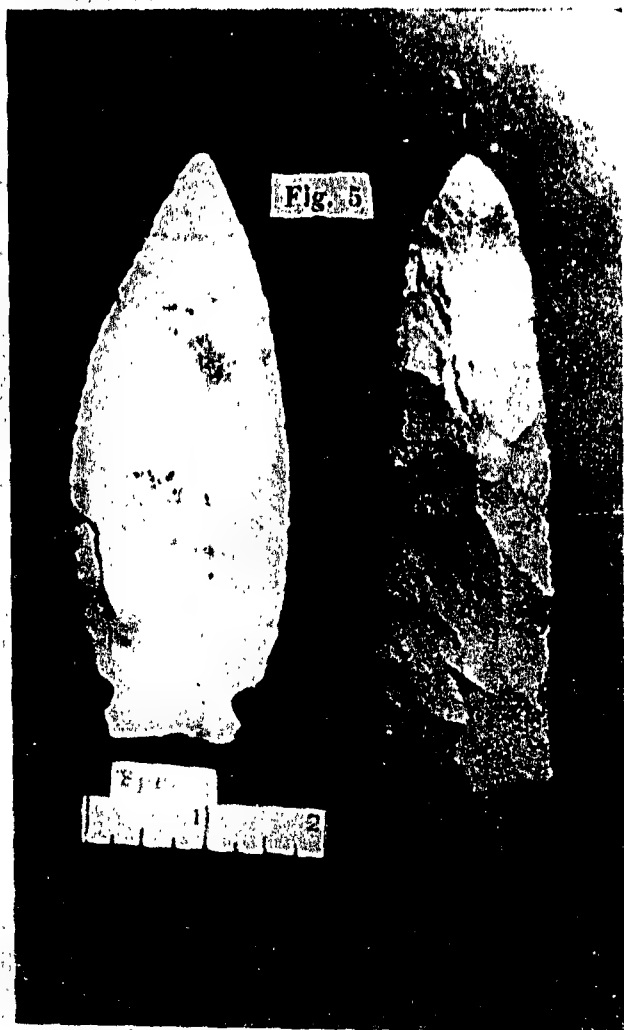
Two types of arrow or spear heads have attracted much attention recently in the United States because they have been found associated with and even inserted in the bones of animals which have been extinct for

Fig. 4



Yuma Points  
Swanson Collection

hundreds of years. They have been named after the places where they were first found, namely, Folsom points and Yuma points. The Folsom points have an incurved base with a hollow flake scar running from the centre of the base a large part of the way to the arched point. The Yuma points have very fine parallel flakes (cripple flaking) running from the edges to a central ridge in the middle and the base is straight and square, a little narrower than the main part, and is devoid of nicks. See Fig. 3 for Folsoms and Fig. 4 for Yumas. Fine specimens of both kinds have been found in Saskatchewan; in fact all the Yumas shown are Saskatchewan specimens. Archaeologists in the United States believe the Folsom and Yuma points to be fifteen thousand years old, which would indicate their use in Paleolithic times, as the Neolithic period began not more than ten thousand years ago. However, the use of these and other spear and arrow heads continued all through the Neolithic era. Some later spear heads are shown in Fig. 5. The quartzite one at the right was found by Jack Michell about a mile northeast of Baildon; the other is the property of Mr. Albert Swanston and was found by him northwest of Sifton.



## **Domestication of Animals**

As population increased and game became relatively scarce these ancient hunters found it increasingly difficult to provide a regular supply of meat. When they came upon a herd of wild animals they had more than they needed and frequently gorged themselves to excess, and when the hunt was less successful they nearly starved. To overcome this difficulty, they evolved the idea of keeping a number of animals in an enclosed space where they could be protected from beasts of prey and would be available when needed. So, early in the neolithic period, we find the people keeping domestic animals. In western Europe the evidence derived from the pile dwellings of the Swiss lakes shows that cattle, goats, sheep, and swine had all been domesticated about seven thousand years ago.

In North America the bison were so plentiful that there was no need to domesticate them, though Bryant in his poem, "The Prairies", suggests that the Mound-builders might have tamed them before they themselves were exterminated. And though the Indians have had horses for a long time, yet some writers say that these and the vast herds of wild ponies that roamed the plains are all descended from the horses introduced into Mexico by the Spaniards. They state that, although fossil remains of early types of horses are found here, they had all become extinct from some unknown cause. In all parts of the world, however, dogs have been the friends of man and no doubt were derived from such wild ancestors as wolf, fox, coyote, dingo, or other dog-like animals.





Picks

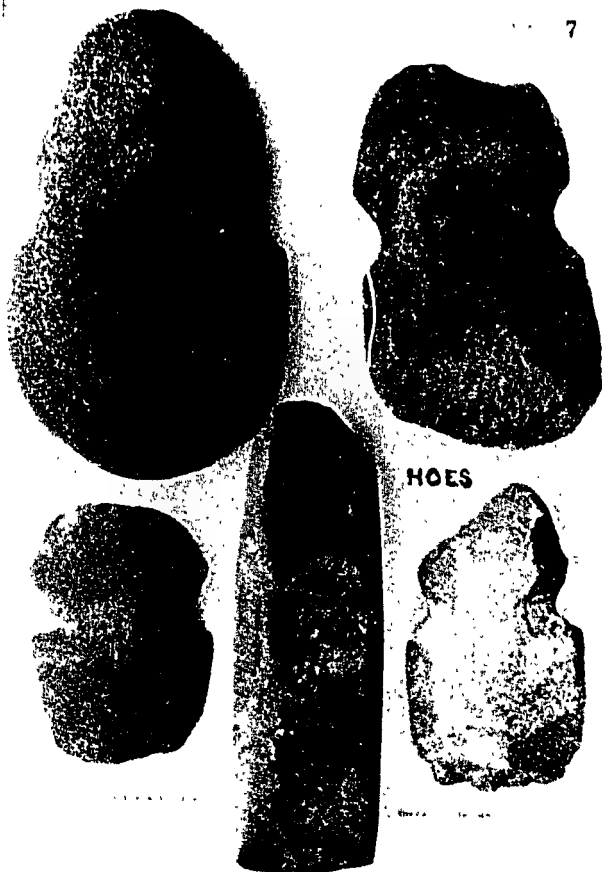


## Neolithic Agriculture

In their search for a steady supply of food it was discovered that the seeds of certain large grasses were good for food. At first, no doubt, they just gathered them as they found them growing wild and it may have been some time before they noticed that these plants grew from seed and that, if the seed were saved, it could be planted in the most suitable places and get better results. Finally the thought came that if the soil were stirred so as to loosen it up and get rid of the competition of other vegetation these desirable plants would thrive better. It is hard for us to realize what a great discovery this was to these people, and yet I have no doubt that in the slums of our great cities children could be found to whom it would be just as great a revelation.

In Europe the Neolithic peoples who moved in from southwestern Asia brought with them varieties of wheat, barley, and speltz, which they had developed from wild forms found in Mesopotamia. On this continent the native maize or Indian corn was cultivated for many generations and still persists in many gardens under the name of *squaw* corn. Potatoes, squash, pumpkins, and beans were also cultivated in America.

What were these people to do for implements wherewith to work up the land? The illustration in Fig. 6 shows how they took a large piece of quartzite and chipped out coarse flakes until they had shaped it into a pick with sharp chisel ends. The first and second implements in this picture are almost identical in shape, but you are looking at a top view of the first and at a side view of the second, where you can see the sharp ends and the slight general curve of the tool. The third one is seen in a side view. It too has chisel



ends but it is not chipped all over. The top of it shows the smooth surface and natural curve of the large pebble of which it is a segment. The lower side has been chipped in from both edges to a central ridge as shown in number four, which is similar to number three but showing the under side. The fifth has been pecked and ground into a cylindrical shape. It too has one chisel end and has a groove cut round the middle for fastening it to a handle.

If the reader will look carefully at specimen number three in Fig. 6, he will see that one end of this tool has been used so much it has become somewhat blunted and instead of a sharp chisel point it has become slightly rounded at the end. The same may be true to a slight extent with the cylindrical one.

The first specimen comes from south of Webb; the second from south of Meyronne; the third from Pense; the fourth from Chaplin; and the fifth from Virden, Manitoba. The first two resemble flint picks from the Thames, England, and from Campigny, France, pictures of which may be found in Cleland's "Our Prehistoric Ancestors" and other standard works.

Another agricultural implement which is found in many places in Saskatchewan is the stone hoe. As can be seen from the illustration, Fig. 7, these consist of an oval or oblong plate of stone with large, smoothly rounded notches, on opposite edges, for tying them to a handle. Many of them are rough and coarse, with nothing but the notches to indicate that they have been made. Others have one side rather smoothly shaped, and a few have a groove across from one notch to the other. In all cases, however, the other side is flat, sometimes quite rough, and has no groove, which distinguishes them from axes, which have the

Fig. 8



groove all round. In Fig. 7 the large oval hoe was found south of Estevan; the rough one opposite it, and the one with the groove, come from near Yorkton; the straight long one is from Moraviantown, Ontario; and the battered one is from Tregarva. All of these were plowed up. Hoes, axes, or hammers are seldom found on the sandy, drifted fields, but generally on cultivated land.

In Europe, two kinds of sickles have been found. One is composed of a wooden form, in much the shape of a sickle, on the inner curve of which a series of sharp little blades of flint have been placed in a groove made for the purpose, thus forming a composite flint blade. The other kind was a large curved sharp flint blade which may have been set in a handle. If any of the first kind had ever existed here, all that would be found would be a number of small flint tools which, being scattered loosely, would not be recognized. In Fig. 8 is shown one of the second kind which was found in Ontario, though they are said to be rare. In Saskatchewan there are a few curved flint blades, but hardly any of them would be big enough for such a purpose.



## Pestles

After having discovered how to grow crops of corn or other cereal, the next logical step would be to devise some means of grinding these cereals into meal. At first, no doubt, this could be accomplished by using any two large stones. The grain is laid on the lower, and the upper, which is somewhat smaller, is held by the two ends and shoved backward and forward on the grain. This in time wears a long depression in the lower tone and polishes the under side of the upper one, forming what is called a pillow mortar. I have heard reports of one of these having been found near Long Lake, but it has been lost track of. Personally, I have not seen one.

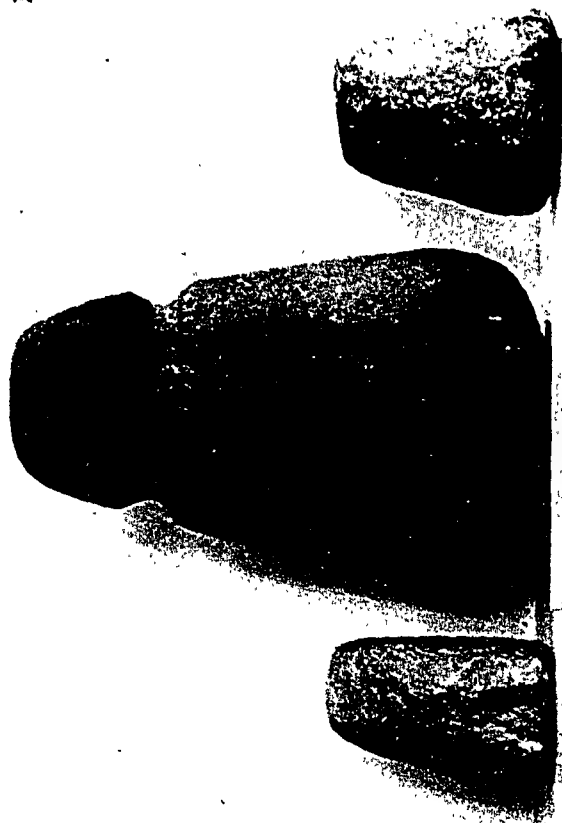
A later device and one more convenient and better looking, though harder to make, is a pestle which can be held in one hand for pounding. A glance at Fig. 9 will give a good idea of their appearance. A few of these are merely adopted natural stones of a long, narrow shape, and all that was necessary to do was to make a flat end on them. The majority of them, however, have been shaped all over by pecking and grinding and a few are polished. In the illustration, two are made of quartzite and, because this is a very hard stone, they are merely adapted forms. Two are of calcite, one of green porphyry, and two are of hard sandstone. A finely shaped one is made of a hard black stone, as yet unidentified.

Their places of origin are as follows, in order from the left: Tregarva, Condie, Avonhurst, Tregarva, Swift Current, Craven, Vancouver, Kyle, and Pennant.

In Fig. 10, in between two white pestles, is an object which many would call a large stone hammer. You will observe that the groove around it is put so



Fig. 10



Bowman Collection

close to the small end that if the handle were fastened on there, it would be too large, clumsy, and unbalanced to use in the ordinary way for a hammer. A more likely use for it would be to suspend it at the end of a springy branch and use it as a pestle, in which case the branch would take a lot of weight off the hands of the person using it to pound grain.

Now, with the pestle there must be a flat stone plate or mortar (bowl) on which or in which the grinding could take place. The large stone platter, sixteen inches in length, shown in Fig. 11, was probably used for this purpose. It was found near the river, in the natural amphitheatre at the south edge of the town of Swift Current. These plates are sometimes called *Metates*.

The three specimens shown in Fig. 12 were also used as anvil stones. The bowl-shaped one which has a slightly convex top, shows marks on its upper surface of pounding something harder than corn. It comes from near Fort Qu'Appelle. The one at the back is a perfectly smooth, flat plate of mica schist, twelve inches long and three-quarters of an inch thick, and has slanting lines cut along the edge for ornament. The third is of a diamond shape and quite flat and smooth.

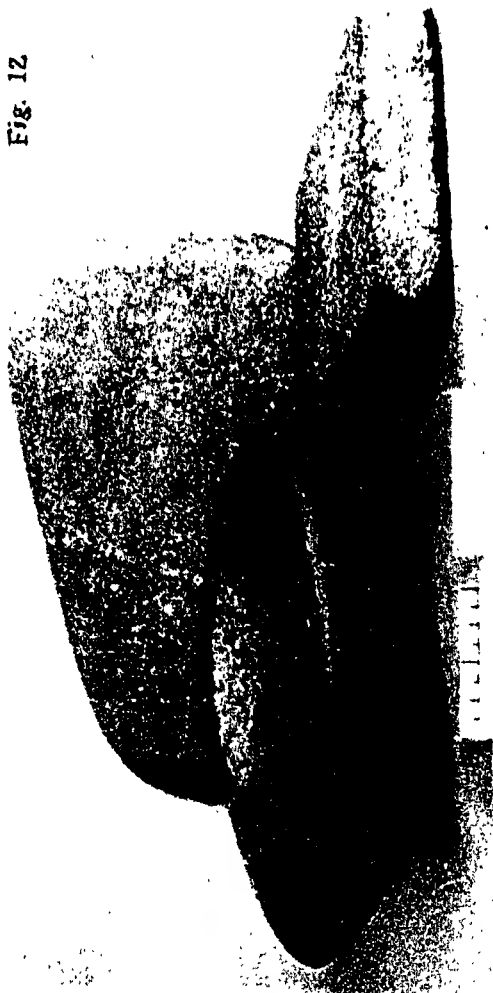
The plates shown in Fig. 13 may have been used for grinding corn, but they have a great resemblance to the stone lamps used about twenty thousand years ago in Europe and also used by the Eskimos of our Arctic regions, who are thought by some noted writers to be surviving remnants of the Magdalenians of Europe. I shall speak of the Magdalenians later in the Palaeolithic section of this book. The small plate shown on Fig. 14 may also be a lamp, or possibly a plate for grinding and mixing medicines. It is four inches in diameter and was found north of Lumsden.



I do not think, however, that we need be in any doubt whatever as to the plate shown on Fig. 15. It would not be so suitable in shape for using as a mortar on which to pound corn. Its whole appearance indicates that it is a stone lamp. The bottom of the vessel looks as though something had been burned in it. If this were filled with soft fat and a wick of some vegetable fibre run out from the centre to the narrow end, the heat of the flame would continue to keep the fat in a liquid state to be drawn up the wick. It seems to be suggestive of Eskimo work, although it was found at Unity, Sask. It is the property of Mr. H. E. Canham.

In Fig. 71 are shown on the left an undoubted mortar and on the right a possible one, although the hole seems to be rather small for a mortar. It may be a stone in which a stick could be twirled to produce fire or a place in which a stone club could be rotated to produce a round end.

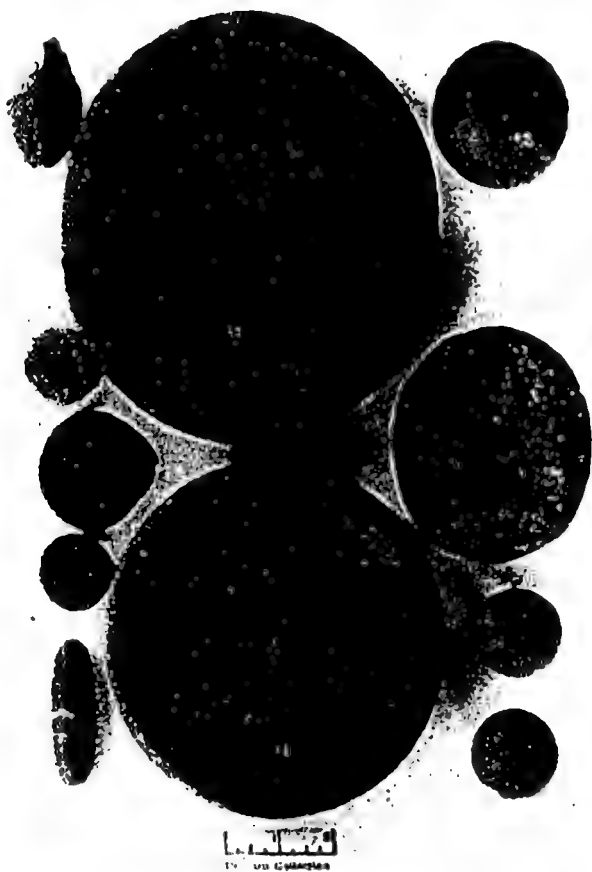
Fig. 12



## Pottery

Early in the Neolithic period a need began to be felt for containers to hold food and water. At first, closely woven baskets were made, but in order to make these fit to hold water, tough clay was plastered on the inside and dried in the sun. Later, to hasten the drying process, a fire was built around them and this baked the clay into a rude form of pottery which would not soften with water. Of course, the basket work would be burnt away but the impression would remain in the clay on the outside of the bowl. A good deal of artistic taste is shown in the decoration of this rude pottery by very simple devices. A succession of imprints of a thumb nail, the pressing of a hard cord or a round stick across the edge of a bowl or pinching the edge of the bowl by thumb and finger, as women do pie crust, are all effective decorations. Punctate designs were made with a sharp stick or bone and the dots were arranged in rows or patterns and in some cases lines were incised in various patterns. In the illustration, Fig. 16, all these types of decoration can be seen on fragments of Saskatchewan pottery. In the specimen at the right hand lower corner, the decoration looks like basket work, but a closer inspection shows that the cross ridges are continuous and not alternately over and under each other like real basketry. This pattern was probably made by a wooden paddle in which grooves were cut, crossing each other in two directions. When this was pressed on the soft clay it would produce the cross ridges seen on the fragment. Another way of making a vessel was to roll the plastic clay into long rolls and by coiling these round and round and patting them together the walls of the vessel would be formed. For purposes of comparison, Fig. 17, which is a cut of Ontario pottery fragments, has been inserted. No pottery has been found in British Columbia, but instead we find stone bowls which would be more durable, but much harder to make.

Fig. 17



Until these early peoples had some means of carrying water with them they were forced to live near rivers or streams, and this may be the reason that the most primitive stone tools are found in greatest abundance in the gravel of the river terraces and banks of streams.

These early potters soon made the discovery that jars made of clay alone were likely to crack in the firing. After much experiment they found that by mixing particles of crushed shells or a little coarse sand with the clay they could obviate this difficulty. If the reader will look at the specimen shown in the middle of the bottom row in Fig. 16, he will see white particles of shell mixed with the clay. In one of the specimens of pottery from the second midden there are two tiny stone pebbles almost a quarter of an inch in length.

None of the Saskatchewan pottery has a glaze. It is all of a rather dull brown, earthy appearance. Some of it is nearly black, possibly due to the smoke from the imperfect method of firing. The black specimen shown in Fig. 16 near the top on the left, the one decorated with two rows of dots, comes nearer having a glaze than any of the others. It was picked up on the shore of Lake Winnipeg by the late Rev. W. P. McHaffie, then a missionary to the Indians.

A similar specimen with the same decoration is illustrated on page 67 in "Primitive Hearths in the Pyrenees", but the dots are not so carefully made. It was found in the top layer in the cave of Montardit, showing that this layer was Neolithic while the layer just below was Azilian.



[ 1 ] [ 2 ]

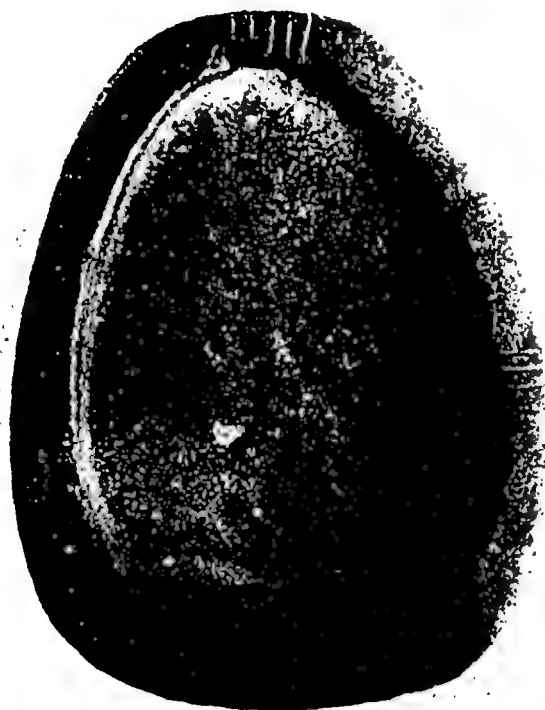
Fig. 14



## Stone Axes

When people began to grow crops and keep domestic animals, they had to give up the nomadic life of the ancient hunters and live more permanently in one place. This necessitated the building of houses. Many of the houses were partly underground and the roofs were supported by poles laid from the outside walls to a central point or a central ridge. To cut these poles it was necessary to have large cutting tools. In the Scandinavian countries of Europe the Neolithic people chipped out finely shaped axes of flint with sharp edges. One modern scientist, as a demonstration, undertook to build a house with no other tool but these and succeeded in doing so in a reasonably short time. In this country, however, there seem to be no pieces of flint large enough for this purpose, and what flint we have is mostly a fine kind of chalcedony which is too brittle to stand chopping on wood. I have one large, thick axe, rather roughly chipped from a piece of reddish quartzite which is sharp enough to cut wood and would stand a great deal of abuse. The majority of axes found in Saskatchewan are made from a fine-grained, tough black stone. A few are grey and some are made from green porphyry. They are mostly shaped by pecking and are finished by grinding, and many of them are polished. Instead of having a hole bored through them for the insertion of a handle, as most of the Neolithic stone axes of Europe do, the ones in this country have instead a groove cut round the centre or frequently nearer the back. A pliable piece of wood is then bent over the top, following the groove down the sides, and the two long ends are then bound together with a thong to form the handle. The same procedure is followed in putting a handle on the stone hammers, an example of which is shown in Fig. 18, which also illustrates a rough axe with the handle

Fig. 15

SCALE  $\frac{4}{7}$  CANHAM COLLECTION

fitted differently. In the case of the axe in Fig. 18, the handle is split part way down and a certain amount cut out on the inside of each part. The head is then placed in the gouged-out part and the top end bound together with a thong as shown. This makes a secure and neat-fitting handle. This axe was found by W. Sneddon of Lumsden. In the centre of the same picture is shown a large, symmetrical black axe which is three inches thick at the back. The length can be determined from the scale. This comes from near Qu'Appelle.

In the bottom of the lakes of Switzerland, where pile dwellings existed six or seven thousand years ago, certain very small axes have been found inserted in a deer horn socket, and this in turn inserted in a wooden club. In Fig. 19 a tiny black axe is shown which was found at the edge of Lake Scugog, Ontario, and which has been in the author's possession about fifty years. After discovering its exact resemblance to the Swiss axes it has been mounted in the same way. It may be that similar axes have been found in other parts of Canada but have not been recognized because both the horn and the wood have disappeared. In Fig. 20 are shown eight axes of altogether different shapes. The large black one is from Scotsguard, Sask., and the one below it was found in digging a cellar in Regina. The significance of this will be apparent when I tell you that the site of Regina was covered by a lake at the close of the last glacial period and an axe found deeply buried in the silt of glacial lake Regina must be of great age and have an interesting history. The two ridge-grooved axes are from near Sifton and the small black tomahawk is from the author's own farm at Tregarva.

Some of the small, neat, well-balanced axes could be used either as weapons or as cutting tools, but we find many large, clumsy, unbalanced ones with dull edges and the groove placed far back, whose use is

Fig. 16



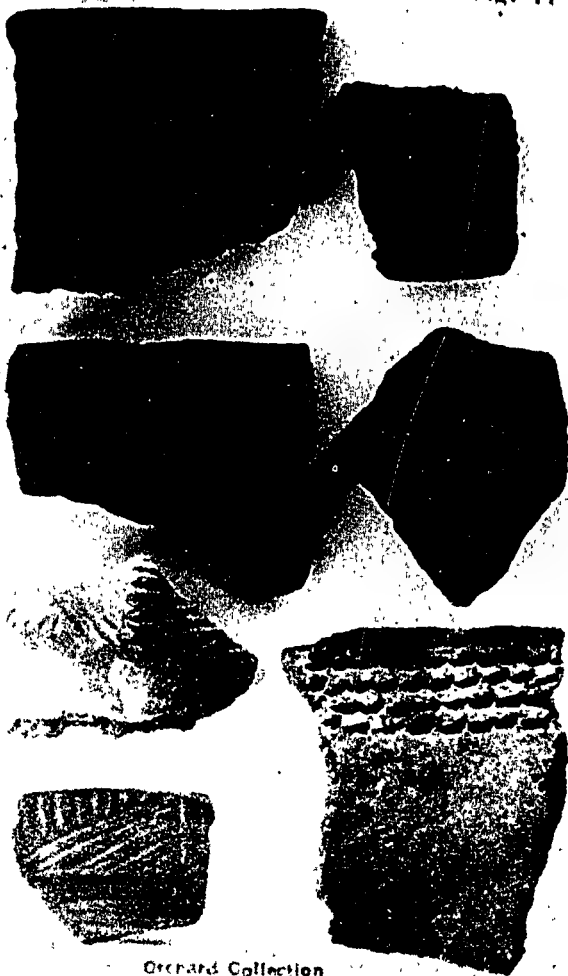
not very apparent. Such ones can be seen in Figs. 18 and 21.

Certain long-shaped stones are found with one end ground to a sharp edge like a chisel, and may have been meant as small axes. In fact, some have been found in Europe mounted in a wooden handle. These have no groove and are very useful as a hand tool in skinning an animal, so that many people used to call them skinning knives. The proper name for them is celt (Lat. *celtis*, a chisel), pronounced "sell"

The evolution of the celt is shown in Fig. 22. The specimen shown at the right side of the bottom row is a French Neolithic celt and has been symmetrically shaped and brought to a sharp edge at the top entirely by chipping. The one at the upper right is a stone which was naturally long and narrow and has been ground to a sharp, smooth edge at the top. The lower left one was partly chipped into shape and finished by grinding to an edge. The middle ones, above and below, are ground into shape all over and polished. The middle one at the top is a dainty little gray flint one from France.

Perhaps we might here call attention to the two large cutting tools shown in Fig. 23. These are not celts nor axes in the ordinary sense. They might be called chopping tools and possibly might have been hafted. It is more probable, however, that they were simply a hand tool. The other side of both of them is identical with the sides shown. They look almost like Paleolithic tools, but they may be Neolithic. In any case, they are sharp, tough, serviceable tools and would cut wood very well. They might also have been used to split bones so as to get at the marrow. The larger one was found at Marieton and the other was picked up by the author on a deeply drifted field four miles north of Cadillac.

Fig. 17



Orchard Collection

## Stone Hammers

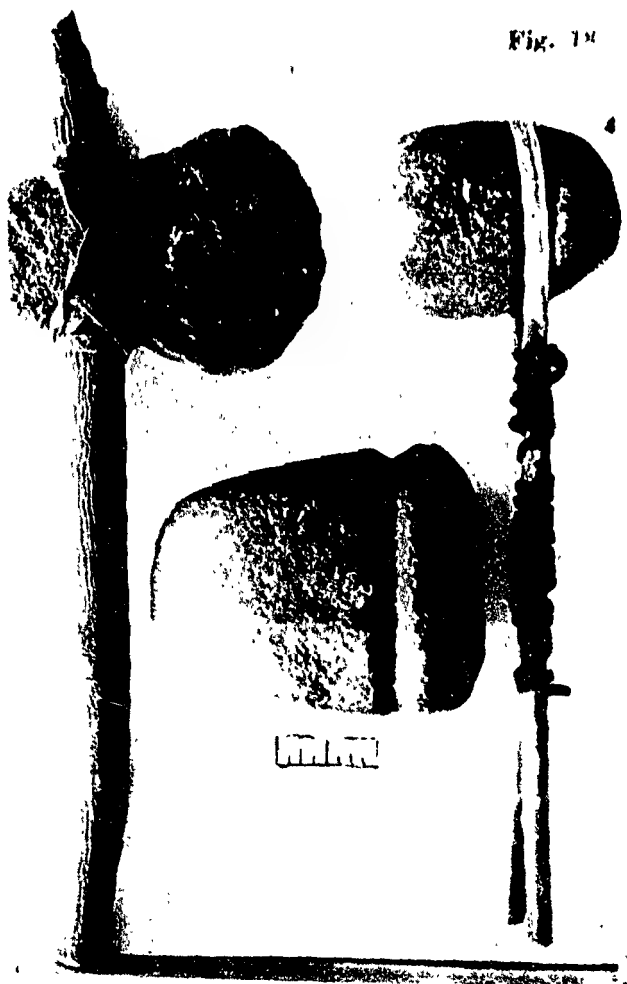
One of the commonest tools found on our Western plains, indeed largely confined to the plains, is the stone hammer. Usually they consist of a good-sized pebble of quartzite, quartz, porphyry or granite, fairly smooth and having a groove cut round them for the purpose of fastening on a handle as mentioned previously and shown in Fig. 18. A few of the smaller ones are fastened to the handle by means of a thong of thick rawhide. This is put on fresh and as it dries it shrinks tight and hardens till it is almost like bone. This, however, is only for the smaller ones, the "skull crackers".

In making some of these hammers, the stone was already smooth and of suitable shape and the only thing done to them was the gouging out of the groove. In others, the whole surface was pecked into shape and afterwards smoothed and sometimes polished. One large one shown has a ridge left on each side of the groove and must have been shaped all over. A glance at Fig. 24 will give some idea of the varieties of size and shape. While people call them all stone hammers, they must have had many and various uses. Some of the uses suggested are:

- (1) To pound dried meat into shreds to make pemmican. These might have round noses.
- (2) To use as a weapon to crack skulls, human or otherwise. These are usually well balanced, not too large in size and somewhat pointed at the ends.
- (3) To drive tent stakes or tether stakes. These would need to be large and heavy and must have a flat face, otherwise they would split the stakes.
- (4) Some of the large, poorly shaped ones were probably used on the end of a rope to anchor a canoe or tether a pony, just as delivery boys carry a large iron weight for their horses.



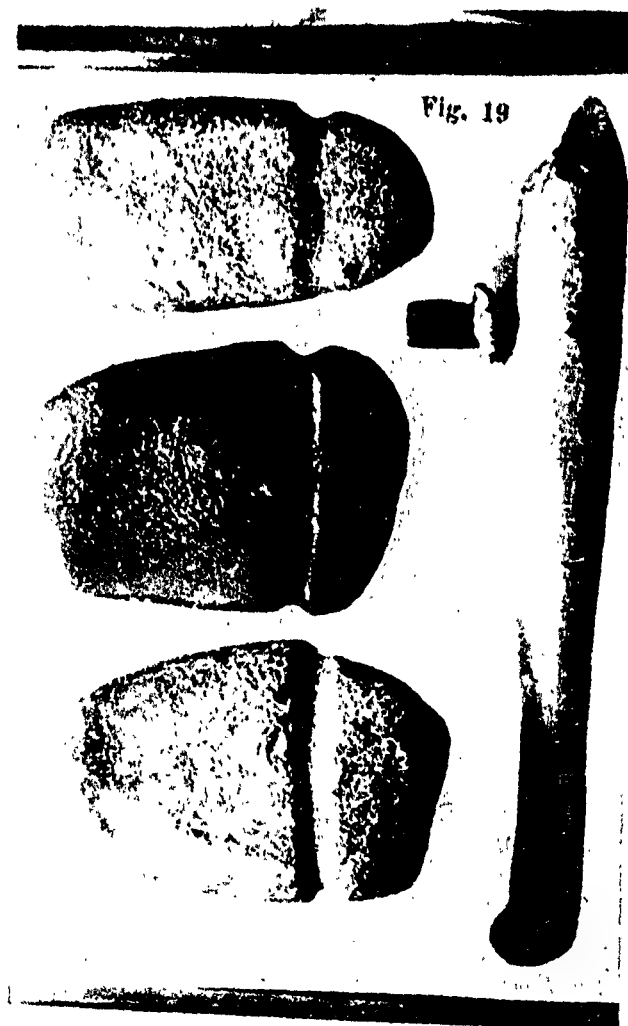
Fig. 19



- (5) Some small ones, with the groove in the middle and no signs of percussion on the ends, may have served as sinkers on the lower edge of a net or as loom weights to hold the warp threads straight as they hung from a frame while the weaver threaded the cross threads in and out. In England, baked clay loom weights have been found with a hole through the top.
- (6) We have already suggested how a large one, with the groove near the small end and the large end flat, could be used as a suspended pestle. The various kinds may be picked out in Fig. 24.

The grooves in these hammers are probably pecked out with a large, sharp-edged piece of quartzite. Some of our collectors have among their specimens rough blades of quartzite with an incurved edge, which they think were used for this purpose. I have in my collection a stone hammer with a good-sized chip knocked out at the groove. It will be apparent that a hammer in ordinary use would not receive a blow in the middle where the groove is, and so it would appear that in chipping at the groove on this hammer the fabricator struck too hard a blow and instead of continuing the groove he knocked out a big chip.

None of the stone hammers mentioned above must be confused with hammer stones or chipping hammers. These latter are rather thick, disc-like stones with depressions in the middle of each of the flatter sides, forming a convenient grip for thumb and finger. The rims of these are much battered, due to the fact that they have been used to strike off flakes in the making of some of the larger, coarser tools. Four specimens of chipping hammers are shown in Fig. 25. The smallest one was found near Craven. The large black one to the left of it is from the Rainy River district. Below that is one from Tregarva, while the one to the



right is from Moraviantown, Ontario. The larger, flatter stone at the bottom of the picture has also been used for chipping, as shown by the worn edge, but it has in addition been used as an anvil stone, as shown by the marks on the flat face. An almost exact duplicate of this double purpose stone was found by Mr. Stewart, of Caron, and in "Human Origins", by McCurdy, a very similar one is shown, but it was used for three purposes, namely, as a rubbing stone, a chipping hammer, and an anvil stone. This last one is in the Yale collection, and is classed as of the Aurignacian age. A more detailed account of the Aurignacian age will be found in the Paleolithic section.

It might be well to mention here the stone clubs which are occasionally found in the province. We do not know their exact purpose. One of these is shown in Fig. 21 from the collection of Mr. Mack, Lumsden. Another of similar shape but made of hard, very smooth green stone was found by Mr. Jelly on his farm near the Little Arm and was engraved with a conventional design on one side and the figures of two birds with wings spread on the other. This last might have been a wand of office. Three more clubs are shown in Fig. 53. The one at the right is a rough strip of stone smoothly rounded and polished at both ends and possibly could have been used as a pestle. I have seen at least one other of this type. The other two evidently are for striking. Both have handles and both are flat. The one at the left is of mica schist and was found by Mr. Carlson on his farm at Torquay. The middle one was found by Mr. Jahn on his farm south and east of Estevan. Stone clubs are probably late Neolithic.

Fig. 20



## Scrapers

Away back in mid-Paleolithic times, perhaps as much as twenty-five thousand years ago, the people then living in Europe felt the need for a special tool for cleaning the hides of animals to make them fit for clothing. For this purpose they invented scrapers made from flakes of flint. When a flake is struck off from a nodule of flint, the side of the flake next the nodule is usually flat or slightly curved. In making a scraper, these people left this side just as it came off and chipped the edge of the other side in flakes slanting steeply down to meet the flat side, thus producing a sharp, strong scraping edge. If this was done only at one end it made what we call an end scraper. If, however, the chipping was done mainly down the two long sides of the flake, making one edge sharp and the other blunt, it was a side scraper. The blunted edge made a good hand-hold, while the scraping was done with the sharp side. Some of these sharp side scrapers might just as well be called knives. Some of the end scrapers were double headers and I have one specimen which is not only a double end scraper but has a good side edge which, while once sharp, has been worn smooth by use. The drawing made by the author in Fig. 26 shows a scraper in a full face view and in an edge view, the latter showing the position of the scraper while in use. This is a natural size view of a dark red quartzite scraper found in a drifted field close to Mortlach by Mr. Jones. See Figs. 27 and 28 for two large side scrapers, natural size, and Fig. 29 for a set of end scrapers. The use of scrapers continued all through Paleolithic times and on to the end of the Neolithic period, consequently it is difficult for us to tell which of our scrapers should be called Paleolithic and which Neolithic. In Fig. 29 the dark red quartzite scraper in the lower left hand



corner is extremely like the flint Solutrean scraper from France at its right, and higher up the left side, the white flint scraper from Lumsden is a close mate for the brown chalcedony Aurignacian scraper from France, next to it on the left.

A special kind of scraper found in Europe in both Paleolithic and Neolithic times is also found here and may belong to either period. These are called spoke-shaves or incurved scrapers. The scraping edge consists of a rounded notch chipped out of the edge of a flake and usually skilfully done. The purpose for which they were made was to scrape down the wooden shafts of spears or arrows, the curved edge fitting on to the rounded stick. Some fine specimens are shown in Fig. 30. These will be referred to again in the Paleolithic section of this book.



Fig. 22

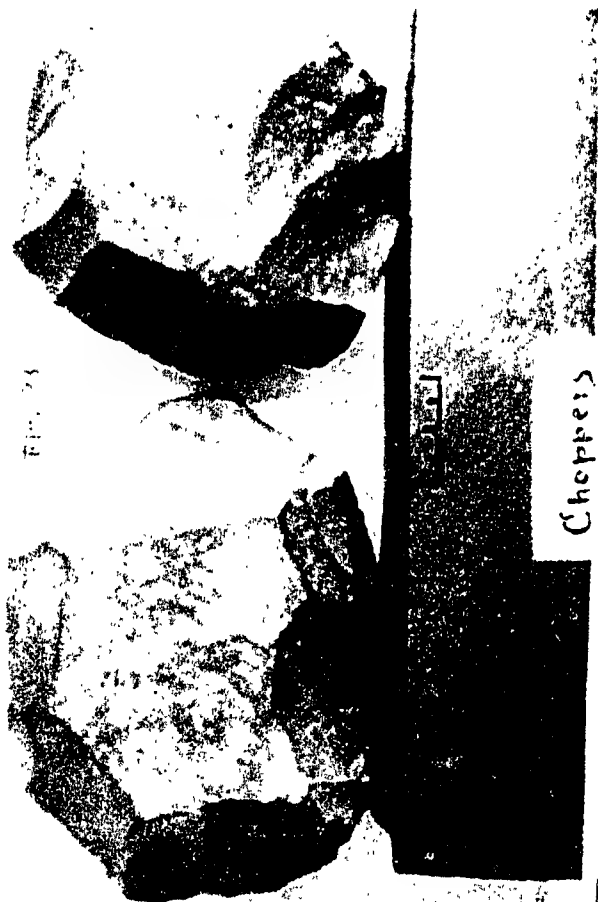


Orchard Collection

## Flint Knives

Some form of cutting tool was one of the first necessities realized by the people of the stone age. At first they utilized any flake of flint which happened to have a sharp edge. Later they sought by chipping to make them conform to a plan and, after a few generations, were able to produce such a good-looking tool as the one from Estevan shown in Fig. 31. This had a straight, sharp edge, but was rather thick and clumsy, being about three-quarters of an inch thick. However, with the development of the pressure-flaking technique they were able to make fine edges and reduce the thickness to a minimum. In Fig. 32 are shown four brown chalcedony knives, the first two from Indian Head, the third from Aylesbury, and the double-edged one from Lake Alma. The second one is four and a half inches long and about a quarter of an inch thick. Flint knives are not always long and narrow, but are frequently of oval or other shape, such as the two delicately worked ones in Fig. 32, from Devils' Lake, near Yorkton and Aylesbury. The latter is only about a quarter of an inch thick.

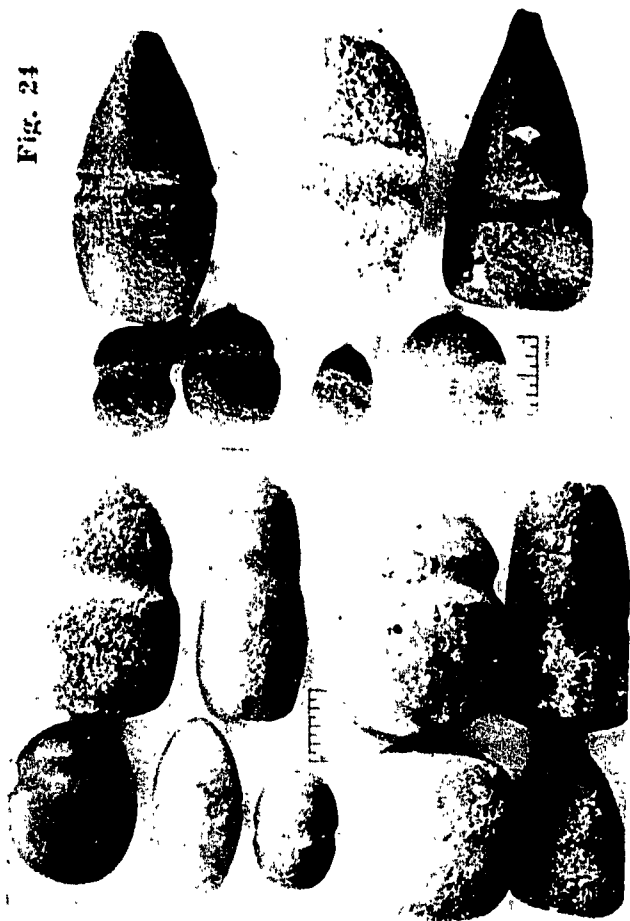
The more complex life becomes, the more varied and specialized the tools become. In the Neolithic period we are amazed at the great variety of specialized knives, some of which may have been for surgical use. Six cuts of these are presented in Figs. 35 to 40, whose use we can only guess at. I have called most of these by the general name of "oblique knives", which I think perhaps is a better general term and fits more kinds than the name given by the University of Texas to similar triangular knives found there, some of which are also found in Saskatchewan. They use the term "corner tang artifacts", which does not fit all their own specimens. I think the term "oblique knives" would fit all their specimens, as well as the ones found here.



In Fig. 34 two corner tang artifacts are seen in the upper left corner. Both are Saskatchewan specimens. Ten distinct types of oblique knives are shown in Figs. 35 to 40. In Fig. 40 the three different types shown in the top row are all left-handed specimens.

Quite a large proportion of flint knives are flatter on one side than the other, and have one edge blunter than the other. If you lay a knife on its flat side with the point away from you, and then find the blunt edge to your right and the sharp edge to the left, it is evidently made for a right-handed person, but if when laid the same way you find the blunt edge to the left and the sharp edge to the right it must be made for a left-handed person. The earlier one shown in Fig. 31 was bevelled to the sharp edge from both sides, that is, neither side was flat.

Fig. 24



## Flint Awls

From even mid-Paleolithic times up to the end of Neolithic times, certain piercing tools were made of flint and later of bone. In the earlier ones the points did not project far, but the chipping leading up to the point was so distinct as to leave no doubt that they had been purposely made. Later, very finely shaped, distinct tools of this class were made with long, tapering points and widened bases, varying in length from three-quarters of an inch to four inches or more. A few were made with notches on each side of the base so that they might be tied at the end of a round shaft. These would be twirled between the palms of the hands and would work fast. Finally a still better method was devised, namely, that the string of a bow was passed once around the shaft and by drawing the bow backward and forward the shaft was made to revolve rapidly. Of course, the top of the shaft would have to be held in place by a flat piece of wood or stone with a shallow hole in it and this would allow of some pressure on the drill. The same device was later used to revolve a stick so as to produce fire by friction.

In the picture of the awls and borers, Fig. 41, the early mid-Paleolithic type is seen in the two specimens in the upper left corner, in fact, the whole top row. The large one in the lower left corner would be wide enough to bore out the bowl of a stone pipe. Some of the finer ones were used to put the eyes in bone needles. Bone stilettos and needles were used in Magdalenian and Neolithic times to sew the skins of animals for garments and for other purposes. Flint awls were used to bore holes in stone and shell beads and also to perforate shells, teeth, and stone amulets for necklaces. The bulbous teeth of elks were much prized (and are still worn by the society of Elks), as well as bears' teeth and claws, and cowrie shells.

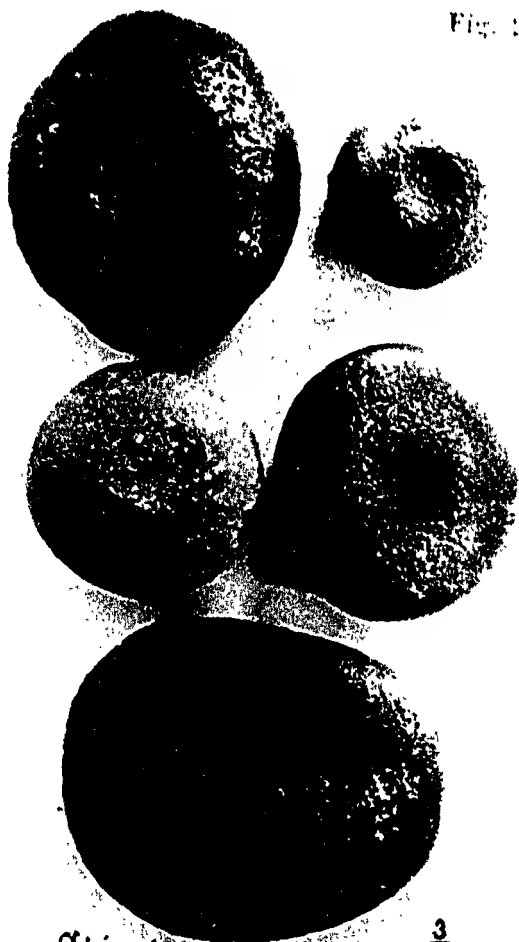


Fig. 27

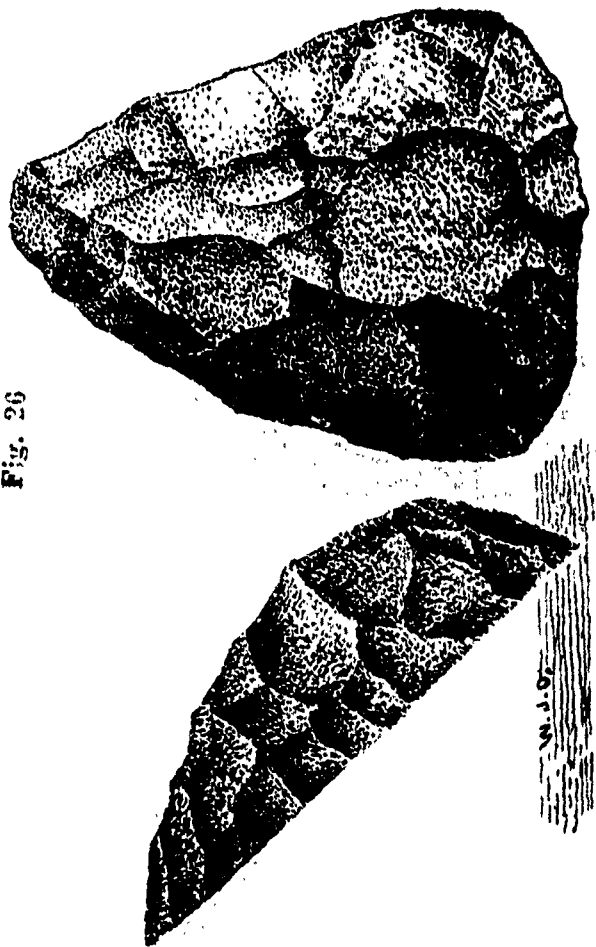
Chipping Hammers  $\frac{3}{7}$

Whole chaplets and necklaces of cowrie shells have been found on the heads of Mousterian skeletons in the caves of France, and here in Saskatchewan I have three cowrie shells found respectively at Lumsden, Stony Beach, and Corinne, which have been perforated for necklaces. Some may say that white men brought these a thousand miles or so from the ocean to wear as a charm, but the primitive mode of perforation on the first two would preclude this idea, as they have been sawn across with a flint tool to cut the hole, and the one from Corinne was found in the digging of a shallow well. See the illustration, Fig. 42, of two elk teeth, two amulets, three cowries, and an assortment of shell and stone beads, the last-named being from near Winnipeg. Two of the cowrie shells were found on drifted fields where many fine flint and stone relics had been found.

Among the early peoples of Europe the cowrie was regarded as a symbol of reproduction.



Fig. 26



## Bone Tools and Middens

Not many bone tools are found in Saskatchewan, for the simple reason that any pieces of bone left lying around would soon disintegrate in this climate and fall to pieces. However, in cases where the air has been excluded from them, they may last a very long time. Mr. Wilson, of Caron, in digging peat from a river bottom on his farm, found a bone awl or piercing tool embedded in the peat. It seems that peat is a good preservative, for in a great peat bed at Maglemose (muckle moss or great bog) in the island of Zealand in the Baltic Sea, a lot of bone tools were found which from other evidence are known to be many hundreds of years old. The reader can find a good account of the great midden at Maglemose in "Ancient Hunters" by Prof. Sollas, or in "Human Origins" by Prof. Geo. Grant McCurdy, or in other standard works on European archaeology. The kitchen middens of the Baltic countries of Europe are extensive heaps of shells, bones, ashes, bits of wood, etc., which have accumulated during long periods of occupation of the site by Neolithic people or tribes just preceding them. The reader can guess how long these heaps might have taken to accumulate when I tell you that some of them are ten feet deep and a thousand feet long, and consist of rubbish from their feasts. Many stone, bone, and horn tools have been lost and buried in the rubbish and in modern times have been dug up and placed in museums.

My reason for mentioning this is to call attention to similar things in Canada. In Nova Scotia there are shell heaps containing bone harpoons and many unusual tools. See the publication of the National Museum at Ottawa, "Shell Heaps of Nova Scotia". At Vancouver, in the great Burne midden, many



Fig. 27

wonderful stone artifacts have been discovered, also bone needles and harpoons and the skulls of fifteen human beings of a race different to those now living there. These have been estimated to be about two thousand years old.

Saskatchewan too has her middens with a wealth of bone tools and remains, though, being so far from large bodies of water, the shells are few and the few flint and stone things are not very plentiful and of rather inferior quality. One of these middens was discovered in digging a well in a nice sheltered ravine or valley facing westward to the larger valley of the Moose Jaw Creek. About two feet underground the boring machine encountered a layer of bones closely packed, containing bones of elk and smaller deer, buffalo, dog, wolf, fox, etc. On examination this bed of bones was found to extend a considerable distance underground, cropping out to the surface rather down among the bushes. As soon as this became known, local enthusiasts came equipped with shovel and screen and proceeded to dig carefully and systematically, sifting each shovelful and noting the depth.

They were rewarded by finding fragments of pottery of so many designs that they must represent a large number of separate vessels. In addition they found bone knives, spatula, a bone dagger, many bone handles with slots in the end for the insertion of small flint tools, a bone spear head, a number of bone awls, and a shaft straightener of which we shall speak again in another paragraph. A tiny strip of bone with a hole bored in one end looked like a piece of a needle. While I do not know of any other case where a bone needle with an eye has been found in Saskatchewan, I am convinced that many of them have been made, because we find specimens of all the tools used in making them.



which are not likely to have been used for any other purpose. In Fig. 43 a complete set of these tools is shown. First, a small sharp flint tool for cutting a strip of bone from the shin or thigh bone of a deer. Second, an abrasive piece of hard sandstone with a groove in it, in which the strip of bone could be rubbed, to shape, polish, and sharpen it. Third, a neat little flint scraper with many round nicks for scraping the needles, and finally a particular kind of flint awl for making the eye. These correspond to many illustrations of similar tools found in Europe. The cutting tool is from the midden, the grooved sandstone from north of Pense. The notched scraper is from Lausden and the piercing tool from the midden. For making the eye, any one of several awls shown in a previous illustration could be used. The bone awl at the right side of the rubbing stone in the picture is the one found in the peat bed at Caron.

In Aurignacian times in Europe about twenty-five thousand years ago, and later in Magdalenian times, the people made certain curious tools from deer antlers and sometimes from bone or ivory. The simplest form consisted of a piece of the main antler two or three inches long with a branch antler proceeding from the side and cut off at a good length for a handle. At the wide part of the junction of the branch with the main stem a hole was bored about a half-inch or more in diameter. In making a shaft for an arrow or a spear, if there happened to be a slight bend in it, this tool was slipped over the shaft to the place where the slight bend appeared and, by pressure on the handle, the shaft was straightened while the wood was green and pliable. Some of these tools had two or three holes and many of them were very artistically shaped and ornamented. It happened that some of the first ones found by the French archaeologists in their own country were of the elaborate kind and they were thought

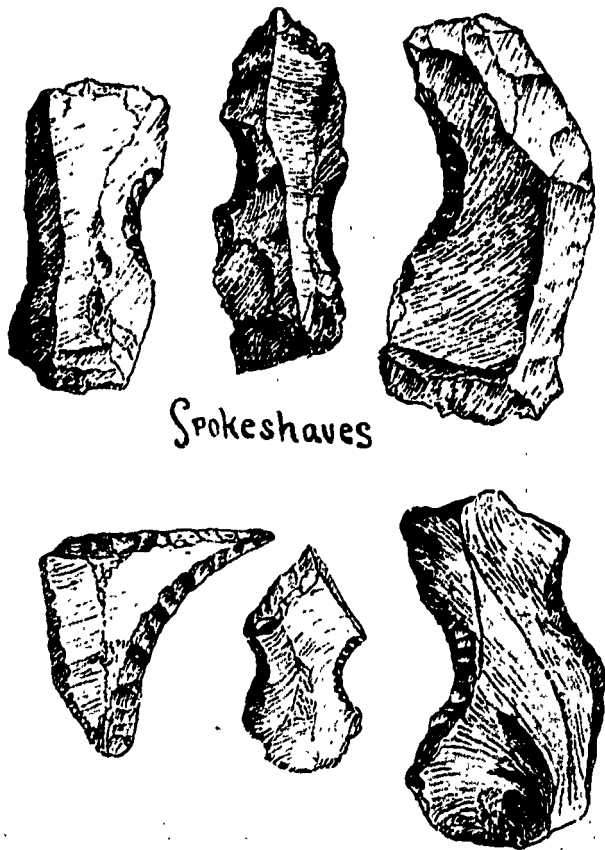
Fig. 29

End Scrapers  $\frac{1}{2}$

to be possibly wands of office. Consequently, they called them the "baton de commandement". Later they discovered their real use as shaft straighteners. The Eskimos have a similar tool but outside of that I have never heard of such a thing being found in Canada. However, in the midden mentioned above, Mr. Michell found a complete one and the base of another. Later a similar specimen was found in the other midden by Mr. Swanston. These appeared to be made from the long, flat spine on the shoulder vertebra of a buffalo, extending up into the hump, or perhaps the similar bone of a moose. In addition to the bone handles, with a socket in the end, one specimen was found of a straight bone handle with a long slot down the side, resembling a jack knife handle. No doubt this would have a long flint side blade inserted and would then resemble the Picts' knives, found in the Hebrides, or the chopping knife some modern women use to chop up the fried potatoes. This specimen can be plainly seen in the illustration, tilted slightly to show the slot. Some of the bone handles have nicks along the edge in sets of two, three, or five, and are evidently tallies. Two small flat bone tools with rounded ends in the Michell collection are probably for pressure flaking on the small flint artifacts, arrows, etc. Mr. Swanston has a rib bone engraved with a rude picture, apparently of a coyote. In Fig. 44 are shown part of Mr. Gunn's collection from the first midden and in Fig. 45 are shown the two kinds of arrow heads and a flint knife from the same midden. In Fig. 46 can be seen part of Mr. Michell's collection of bone tools. Both are worthy of study. In Fig. 47 and Fig. 48 are seen an arrangement of tools from the two middens, containing two different kinds of bone daggers from the Orchard collection. The frontispiece shows one of the bone handles mentioned above with a fine brown chalcedony blade inserted in the end socket. Beside it is an oblique



Fig. 30



Spokeshaves

knife not previously shown with its straight tang fitted into a wooden handle and bound there with thongs. The brown chalcedony tool between is a combined end tool and spokeshave.

One bone handle in the Orchard collection, Fig. 48, is made from the radius bone of a man's arm and is shown next to the large awl on the left. It will be noticed that the small flint knife in Mr. Gann's collection is remarkably like the one in the Orchard collection from the other midden. In Fig. 49 parts of at least twelve different pottery vessels from the two middens can be seen. In Fig. 47, just above the two jaws, is a fine little flint tool with a sharp point at each end. This may be a double ended knife, as each end is made into a sharp triangular blade. However, it might have been used for catching fish. If a cord were fastened to the middle and a piece of bait stuck on one end, the thing would hang straight up and down in the water and would be swallowed that way by a fish. When the line was jerked the thing would turn cross-ways in the fish's gullet and hold firmly. Similar things are made of bone. Some people call this a gorge.

As shown in Fig. 45, the midden people made only two patterns of arrows, the triangular type with chisel base and no notches and a somewhat similar kind with notches going straight in, parallel to the base. The only exception I have so far seen is the small white one outlined in Fig. 47 to the left of the base of the big dagger. At the right side of the same picture are two bones shaved off to make knives. Close to the upper knife is a small bone tool which is one of four found by Mr. Michell and has probably been used to make the punctate decorations on some of the pottery.

In the second midden Mr. Swanston found a bone which was excavated at the end to form a socket for



a tool and in addition was engraved with a picture of an animal which from the sharp ears and drooping tail is probably meant for a coyote in spite of the fact that the body is as disproportionately long as that of a dachshund. This specimen is pictured in Fig. 69, along with other bone tools, one of which is like the one just mentioned in the preceding paragraph.

In Manitoba a fine midden is located at Lockport, about seventeen miles from Winnipeg. Here, on the bank of the river, erosion has exposed fragments of pottery *in situ* at as great a depth as five feet. A few arrow heads are found there each year and a bed of fish bones shows something of the diet of these people.

At Carberry a field was found so littered with bones that it was difficult to plow. However, it has been under cultivation for several years now, and has yielded a stone pipe, a complete vessel of pottery and a large number of very small arrow heads.

In the Whiteshell region east of Winnipeg a large mosaic work has been done laying stones in such position as to outline a snake, a turtle, and other things. This surely must have been a place for ceremonial gatherings.

FIG. 61



## Symbols or Objects of Worship

So far we have been describing products of the Neolithic period, of which the use was obvious. But there are many stone artifacts which are not of a utilitarian nature, things for which we see no conceivable use. Some of these are either intended merely as works of art or they have a deeper meaning in the way of a cult as objects of worship or are in some way symbolic.

On two high hills not far from the east side of Last Mountain Lake were found two large slabs of stone, on each of which was carved a rude representation of a face. In both cases lines radiating from the eyes and in one case from other parts give the impression of rays of light and seem to my mind a rude representation of a sun face. From the fact that both were found on high hills which would be struck first by the rays of the rising sun we might infer that they were made by sun worshippers. As can be seen by a glance at Fig. 50 and Fig. 51, neither of them was intended as a real likeness of a human face. It is a remarkable fact that in the Aurignacian figurines made in France by Cro Magnon men there is seldom or never any attempt to portray the face. We hardly know whether this is because there was some taboo against it or merely that they felt they had not the skill to do it. Many of the Neolithic European stone figures or faces are as crude or even cruder than the Saskatchewan specimens above.

On a high hill near Riverhurst, Mr. Gagne found a stone face in which there is no suggestion of sun worship. The whole suggestion is that of a hooded figure. In the first place, a mark across the forehead seems to indicate the lower edge of the hood. Then, just above this edge, in the middle of the forehead,



there is an appearance of a triangle, no doubt a decoration on the hood. The pointed high top of the head and something at the side, like a fold of cloth, also heighten the impression. Although the features are crudely represented, yet a passing glance gives the impression of a strong face. Fig. 51.

On another "high place", to use a biblical term, this time on the west side of East Mountain Lake, there was found, thirty or forty years ago, what is perhaps the most interesting of these stone carvings. It consists of a double head with two faces looking in opposite directions. These faces have real features, nose, mouth, nostrils, teeth, ears, and eyes. They seem to be real likenesses, but of a race different to white men or any of our own present Indians. It has been named the Saskatchewan Janus after the Roman god of that name, who was the god of the New Year, looking forward and backward, also the god of entrances, looking in and looking out. Three views of this strange carving, which is nearly life size, can be seen in Fig. 52. It measures ten and a half inches from nose to nose. It is in the Orchard collection.

In the top of one of the heads can be seen a round, flat depression in which it would be possible to lay a twenty-five cent piece. This would seem to indicate that the makers of this sculpture had some knowledge of the operation of trepanning the skull. This operation was performed with flint knives by some of the earlier races, both in Europe and on this continent. Human skulls have been found at the coast in British Columbia from which one or more circular pieces have been cut and the healed edge of the bone around these openings shows that the operation was not fatal.



Fig. 34

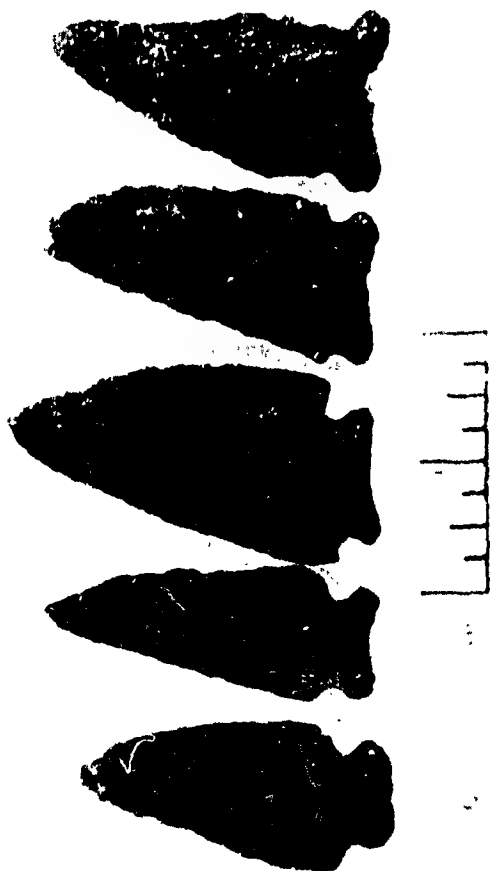


In northern Saskatchewan a strange piece of artistic work was found in the form of a large stone bowl or urn. On three sides of this object faces were carved in high relief and on the fourth side a beginning has been made on a fourth face by marking an outline of two eyes. The top is hollowed out like a bowl. The faces are of a peculiar type, with a bold, almost malignant expression. In fact in one face the tongue is stuck out at the corner of the mouth. It is hard to tell what race they represent. This object may be a mortar with grotesque ornament or it may have been a sacrificial urn or burial urn for the ashes of a cremated body. The whole style of this object is entirely different to that of the preceding sculptures. This one shows some resemblance to the type of work found in British Columbia or Mexico. This remarkable specimen belongs to Prof. Agtiusson of Saskatchewan University, and I believe was found in a gravel pit near D'Arcy, Sask.

Another stone specimen which may be of a totemic nature was found by Mr. Foulkes at Colgate, Saskatchewan. It consists of a narrow strip of black stone, flat on one side and smoothly rounded on the other, with a small animal's head carved at one end, and at the other end a groove as though it might be made for a pendant. The grooved end of another which had been broken was also found. A similar broken piece showing the groove was found north of Regina.

At Stony Beach a young lad found a stone figure of a human form with folded arms which was only about an inch and a half long and looked like a tiny mummy. It also had a groove around the small end and was no doubt a pendant. See Fig. 53 for both pendants.

Fig. 33



It is difficult to tell the significance of a round stone tablet seven inches in diameter on which has been carved a hollow impression of a human hand, or of a rough granite boulder in which has been hollowed out a life-size footprint of a man. These are shown in Fig. 54 and Fig. 55. We do know that in the caves of France some of the walls are covered with prints of hands put there by the Aurignacians, who lived there twenty-five thousand years ago. The plate with the impression of a hand was plowed up in a sandy field five miles south of Estevan, Sask., by Mr. Ross and is in the author's collection. A similar one was found near Yorkton and belongs to Mr. W. J. McDonald. The footprint was found in digging a cellar at Tuxford and is in the Provincial Museum.

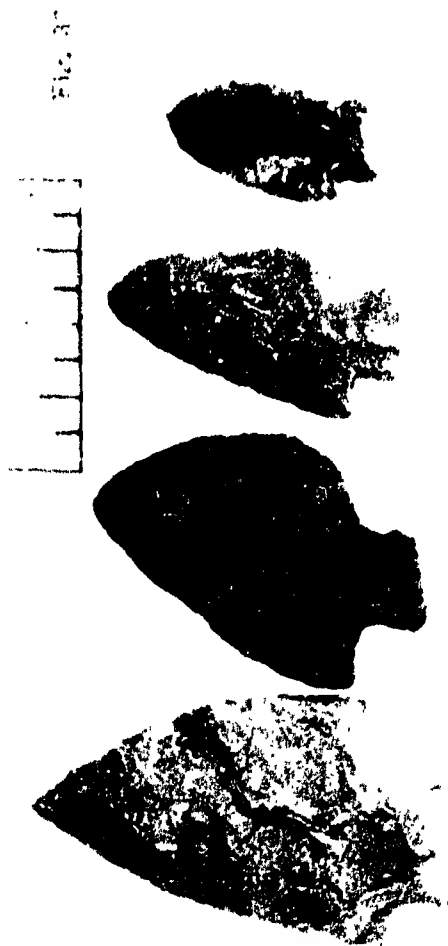


## The Palæolithic Age

So far we have confined our attention to a study of the Neolithic age in Saskatchewan because the tools of that age conform most nearly to our modern ideas. When we see skilfully made knives, hammers, pestles, scrapers, plates of stone, etc., their use is obvious, but we must not think that when the stone age began men even thought of their needs for these tools or had the skill to make them. In various countries where scientists have made a real study of the stone age they find it began with the crudest beginnings. The first tools which were made were rude, shapeless, purposeless things which we might hardly recognize as tools, and for thousands of years men used them, gradually making slight improvements. But the progress was accelerative and when once they began to think new thoughts and work out new plans the improvements came faster and faster.

We cannot think that this country is any exception. Some scientists say that this continent was populated much later than the so-called older continents and that we have never had a Palæolithic age here, that it is all Neolithic. When they are asked to account for the crude, rough, uncertain forms found here they say, "Oh, in every age there are some unskilled workers and some would have to use poorer material, and this would account for cruder forms."

If, as some writers say, the Neolithic culture was brought in by those who had used it elsewhere, did they also bring in crude forms which in other countries had been discarded long before Neolithic work began. There is no doubt that rude Palæolithic forms are found here.



When asked for further reasons why none of our specimens are Palaeolithic, these writers give three main reasons:

- (1) That our specimens show no patination (a change of color due to the action of weather and soil conditions) and therefore they cannot be Palaeolithic.
- (2) They say that we have not a complete series of all the tools found in Europe and that certain special tools are not found here, notably the side scraper and the spokeshaves or notched scrapers.
- (3) That no geological proof of age can be found and that as most of our relics are found at or near the surface of the ground they must be comparatively modern or they would be found at greater depths as they are in Europe. Let us look at these objections separately.

Patination consists in the dissolving of some of the darker components of flint by water in the soil where the specimen is lying, thus leaving a film of the lighter colored particles exposed at the surface. This film is not very thick, enough of the darker color shows through to produce a cloudy, bluish appearance. If the process is continued long enough the whole surface becomes creamy or even white. In fact some patinated flints when broken across show that the patination has penetrated as much as a sixteenth of an inch. In some soils the process of patination is accelerated by the presence in the water of certain other chemicals taken from the soil. Patination shows most clearly on black flint or brown chaledony and in many of the specimens that have been found that were broken, one part will be almost unchanged, while the other will be highly patinated. I have in my collection several pieces in which one side is almost white and the other side natural brown. Then again some



Fig. 3.



Orchard Collection

specimens, after being patinated nearly white, have come in contact with iron or some other substance which produces on them an orange color, a dark yellow, or a mottled brown and bluish shade. Many of our specimens are of quartzite and that has nothing that can be dissolved out of it, and is consequently never patinated. Every collection in Saskatchewan, and I have seen about forty, contains a number of patinated specimens. The first objection on our list is refuted.

Let us now examine the second contention, that certain distinct tools of the Paleolithic series are not found here. Distinct specimens of the side scraper, large and small, are very common in Saskatchewan, some of them being remarkably like Mousterian specimens from France, as will be shown later. Moreover, the spokeshave or incurved scraper is not uncommon, as can be seen in Fig. 29. The graver is rather rare in this province, but even that can be found, though engravings on bone or horn are not plentiful.

The third objection had to do with geological evidences of the age of specimens. A little consideration will convince us that it would be almost impossible from the configuration of the prairies that there should be the same kind of geological evidences here as obtain in Europe. The earth strata of the prairies have been left flat without upheavals or contortions and consist mainly of beds of cretaceous rock overlain with boulder clay and sand or gravel of varying depths, in some places as much as one hundred and fifty feet. During the last glacial period, of which there were four, both here and in Europe, the main centre of the ice field of this continent was at the west side of Hudson's Bay, where it reached a depth of several thousand feet. The pressure of such an immense weight of ice squeezed it out in all directions, going as

Fig. 39

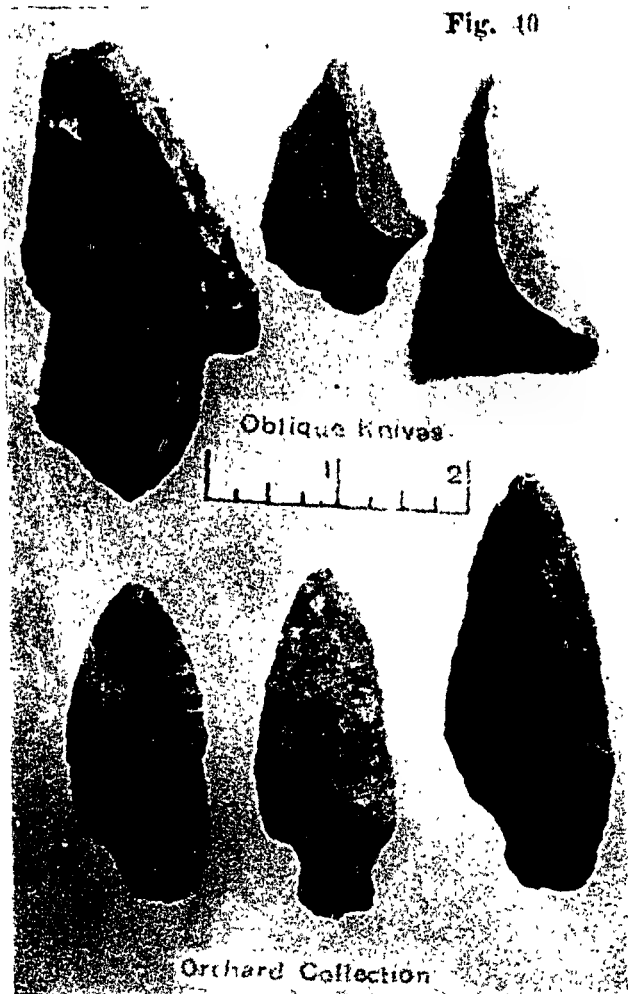


far south as the Ohio River and as far west as the foothills of the Rocky Mountains. Though its motion was slow, yet its power was irresistible. It tore up the rocks over which it passed, grinding them against one another and against the bed rock below, so that great quantities of clay, sand, gravel and boulders were formed and carried along. All over these prairies we find fragments, both large and small, of rocks which originally existed only at Hudson's Bay, scattered through the soil even as far west as the foothills.

Now, supposing that men were living on these plains before this glacial period began and using stone tools which they frequently left scattered in places where they had lived, what would probably happen to these tools as the ice sheet came along? They would naturally be rolled about and mixed with other rocks and soil and carried along by the ice sheet, and when the ice sheet melted would be left stranded along with fine sand or gravel, or with boulder clay over the whole surface covered by the ice. As the ice disappeared the land would in time be inhabited by people, possibly of a new race. These people might make tools of a finer type and leave some of them scattered in various places where they might be found not far from the older types. Especially is this true where the fine rock dust has been carried by the wind and deposited in beds of loess covering ancient tools. The later people would choose this kind of a spot to camp on because it would be dry and not muddy. Consequently, when in the present time strong winds carry away the loess, both kinds of tools remain together on the surface of the ground thus exposed. It is in drifted spots of light land that the greatest number of artifacts are found.

Now, in Europe there were ice sheets the same as in America, but in their progress over the land they

Fig. 10

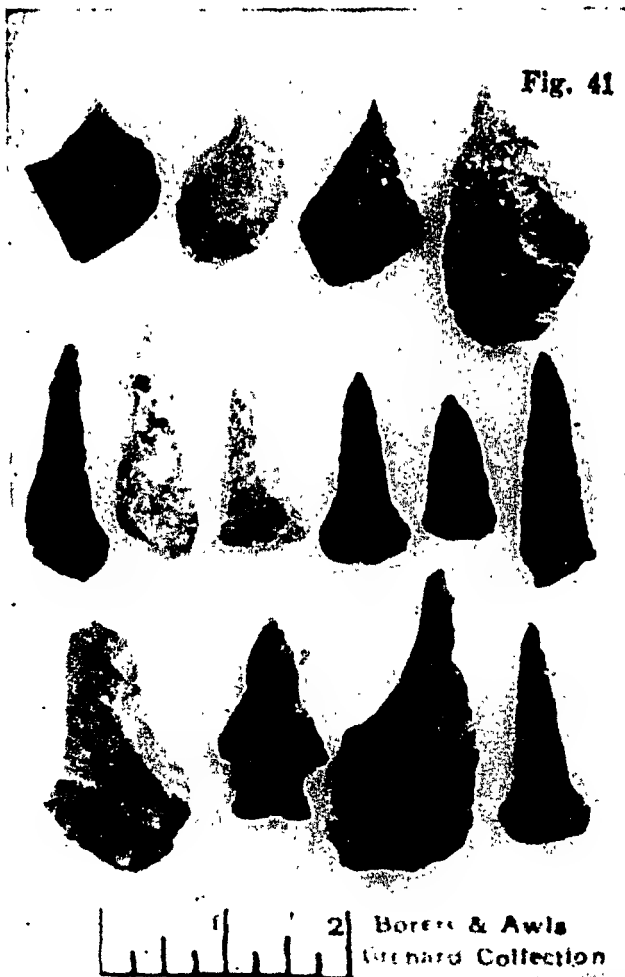


were frequently obstructed and turned aside by mountains, and, sheltered by these mountains, many small valleys were left unglaciated. Consequently, in the gravels of some of the river terraces and in caves in the banks of the rivers we find the tools and skeletons of early man, undisturbed.

A study of some of these caves in France and Spain is very enlightening, revealing the fact that they have been successively inhabited by different races, each of which has left behind traces of their occupancy. As the relative level of land and sea has changed several times during these thousands of years, it frequently happened that when the land subsided these caves were flooded and a layer of clay, sand, gravel or limestone has been deposited on the floors of the caves covering up the hearths, the scattered tools, the skeletons of the men themselves, as well as the bones of contemporary animals which they had eaten. Later, when the land was again elevated, these caves became dry and were again inhabited by the same or other races of people, who, in their turn, left certain relics on the floors of the caves as they found them. The number of layers deposited in these caves varies from two or three up to twenty and in some of the caves several distinct types of implements are found in the different layers.

We have here, then, a most perfect natural and indisputable index as to the comparative ages of the specimens, for undoubtedly the bottom layers with the tools they contain must be successively older than the ones above. We shall refer to this in greater detail in a later paragraph. A short study of European archaeology and classification will throw considerable light on the specimens we find here, because in this country we have not sufficient geological evidence on which to base a proper classification, especially of the specimens which appear to be Paleolithic.

Fig. 41



## Classification

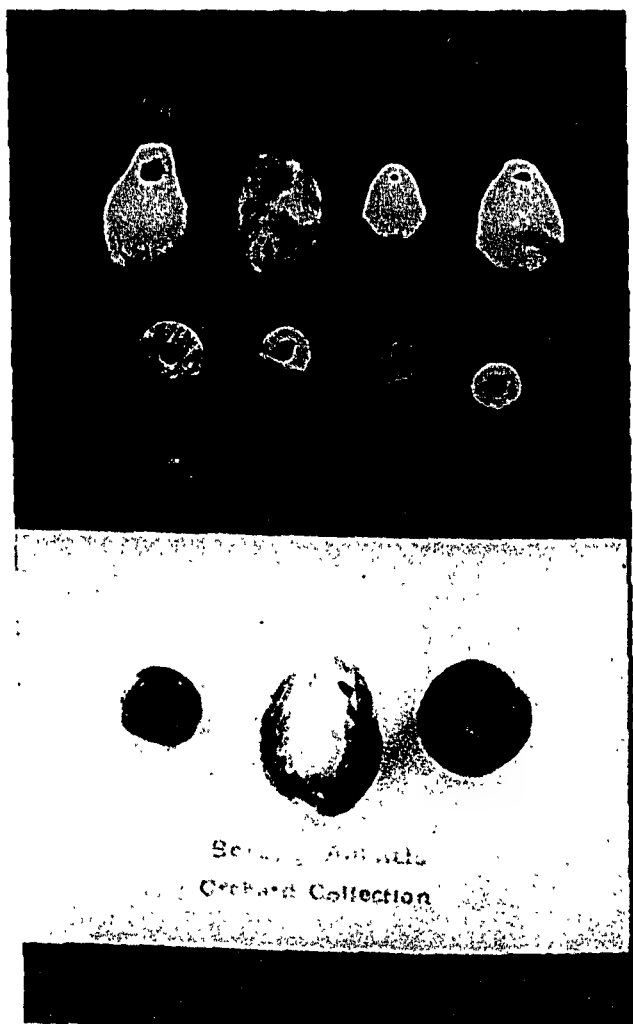
On account of the natural advantages they have enjoyed, the French archaeologists have taken a foremost place among the students of the stone age. It is true that Britain, Spain, Germany, Belgium, and the Baltic countries have an abundance of relics and numerous cultural sites of the different periods, all have splendid museums and a galaxy of writers on the subject, and all have made their contribution to the general store of knowledge. Yet the fact remains that the system of classification and nomenclature adopted in France has been accepted by all the countries of the world and no work on the subject would be complete without some reference to the discoveries and writings of such noted Frenchmen as Boucher de Perthes, Victor Commont, the Abbe Breuil and Gabriel de Mortillet. Prof. Sollas, speaking of classification, says, "These remarks imply a standard of comparison which Europe, or more particularly France, seems best fitted to provide. The pressing task of the anthropologist is to determine the true order of succession of the different industries in an appropriate area. This once established, the next and more difficult task will be to refer the industries of other lands to it . . . it simplifies nomenclature and renders it more exact." This is the procedure I wish to adopt in the following pages.

With this end in view, let us try to give some idea of this French system of classification and nomenclature which gave names to the various types of stone age tools.

In a gravel pit near Chelles, France, are found many characteristic specimens of the earliest type of flint tools which were surely recognized as the work



Fig. 42



of man. I say "surely recognized" because some earlier, cruder forms are found, about which a great controversy has raged as to whether they are real human artifacts or merely accidental forms resulting from the action of natural forces. However, most scientists now recognize these earlier forms as true artifacts and they are usually called *coliths* (claw-stones) and *prechellean*.

To return to the peculiar forms of flint tools found near Chelles, the archaeologist knew no name for the people who made these things and De Mortillet proposed that we name each type of tool from the place where the most characteristic specimens of that type are found. Consequently, he called the kind found at Chelles by the name *Chellean*. Wherever specimens of that type are found, whether in England or Siberia, in Egypt or China, in Belgium or Germany, they are called *Chellean*, meaning that they are similar to the ones found at Chelles. In the same way fine specimens of the next later class (as indicated by the cave index) were found at St. Acheul and were called *Acheulean*. Others of a different type still were found in the cave of Le Moustier and were named *Moustertian*. Those found at Aurignac were called *Aurignacian*; those at Solutre were called *Solutrean*; those in the cave of La Madeleine were called *Magdalenian*, and those at Maz-d-Azil were called *Azilian*. These seven classes with the *Eoliths* or *Pre-Chellean* cover all the types that are included in the *Paleolithic* or *Old Stone Age* and bring us right up to the *Neolithic* or *New Stone Age*, the age of polished and ground implements. After the *Neolithic Age* we come to the age of metals, first the *Bronze Age* and later the *Iron Age*.

Fig. 43



We have already spoken of the natural index as to the relative ages of the different specimens, furnished by the caves of France, Belgium, Spain and England, and it might be well at this point to give some details to show how complete some of these are. In the Cavern of Castillo near Santander in Spain are found a variety of different types of implements in the layers which have been successively deposited on the floor in the following order, beginning at the bottom and working up, namely, a layer with Acheulean tools, two layers of Mousterian, four layers of Aurignacian, a layer of Magdalenian with tools of flint, bone, and horn, and some human remains, a layer with Azilian tools, then some Bronze Age tools, and finally a layer of recent detritus. Interspersed with the above were layers of clay in which no relics were found and three of the partition layers were of stalagmite limestone, making a complete separation and preventing any mixing of types by the working down of tools from one layer to a layer below. The reader can now see why we say the Chellean type is older than the Acheulean, and the Acheulean older than the Mousterian, and so on. In the Grotto du Trilobite we find a succession of Mousterian, Aurignacian, Solutrean, Magdalenian, and Neolithic. In the Helin Terrace we have layers of Chellean and lower and upper Mousterian.

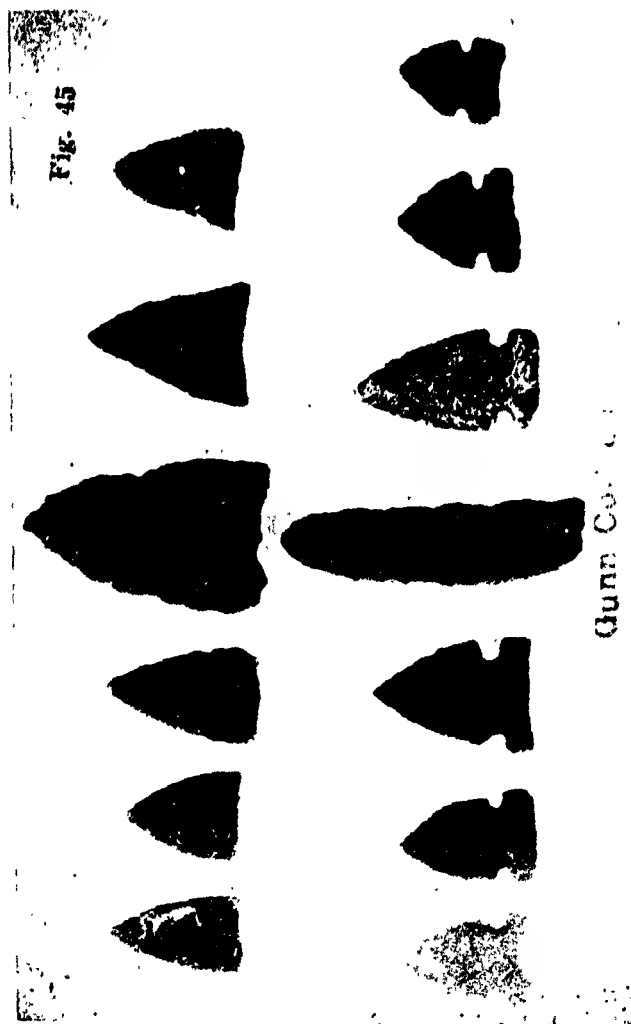
I need not multiply examples, for there are many of them, but the order is always the same and even if one or more types should be missing at any site, the others that are there are never out of order. The following list shows a summary of the types in order, with the oldest at the bottom. In the succeeding pages I shall attempt to give in concise form the characteristics of each type with illustrations of specimens of each from Europe, compared with specimens of the same type from Saskatchewan.



	Neolithic	
The Stone Age		Azilian
		Magdalenian
		Solutrean
	Paleolithic	Aurignacian
		Mousterian
		Acheulean
		Chellean
		Bohithic

### CHELLEAN TYPES

Chellean man had few tools. He had no pocket or knapsack for carrying them and they were large and clumsy. Both Chellean and Acheulean tools were core tools. In proceeding to make one of these tools the early toolmaker first selected a good sized nodule of flint and looked for a nice round pebble of quartzite to use as a chipping hammer. At first, no doubt, any round pebble of this kind could be used but he soon learned to make convenient chipping hammers of definite form like those illustrated in Fig. 25. Squatting on his heels or sitting flat on the ground, he held the nodule in one hand and struck it sharp blows with the pebble in the other hand. As the quartzite pebble was much harder and tougher than the flint, especially if the flint were fresh from the chalky bed where it was formed, he could succeed in knocking off flakes from the two sides of the nodule until he had brought one end to a more or less sharp, flat point, the whole tool being somewhat almond-shaped or pear-shaped and having two rather zig-zag edges running down the



sides. The base was much thicker and frequently had a patch of the original crust of the nodule left unworked. Thus the tool when finished had both faces chipped all over and was really the centre part or core of the original nodule, hence the name, core tools. The worker would surround himself with the chips and in one or more cases modern man has found a workshop of this kind with the tool and many chips and it has been possible to fit the chips back into place around the tool until the nodule was reconstructed. In one case only one small flake was missing.

Ancient workshops are occasionally found in Saskatchewan. On one occasion I was wandering over a sandy field near Jameson, Saskatchewan, where the top soil had drifted away to a depth of three or four feet, when I came to a spot about three yards square on which I picked up a double handful of small chips of very fine flint and stone. I immediately said, "This is a workshop. I wonder if the ancient toolmaker left any finished tools around." Standing right there, I cast my eyes around and just behind me on the surface of the ground lay a fine sharp stone knife of an oval shape with truncated base about three inches long.

The French archaeologists called this Chellean tool a "coup-de-poing" (blow of the fist). The Germans called it "faust keil" (fist axe), and the English called it a hand axe. It was probably grasped by the thick end, which formed a convenient hand hold, and could thus be driven forward as a dagger, could be used as a digging tool, could even be used as a cleaver, and no doubt where the edge was reasonably sharp could be used as a rough knife. While the coup-de-poing was the main tool of these people, yet no doubt flakes with sharp edges would be used as knives and ones with sharp points would be used to bore holes.



Fig. 46



Before proceeding to give illustrations I would like to impress upon the reader the necessity of studying in every illustration the scale or measure which will be found in almost all of them. I have had people tell me that they had a specimen exactly like a picture in a book, but I found out that they had not consulted the scale and while the picture showed a specimen seven or eight inches long the article they showed me was about an inch in length. The Chellean *coup-de-poing* varied in length from about three inches to an exceptional length of twelve inches, averaging about six inches. In Fig. 56 are shown four hand axes of the Chellean type. The first at the left is a pointed flint one from Cagny on the river Somme in France and is patinated and of a mottled blue color. The second is also from Cagny and was found at considerable depth in the gravel of the river terrace, and is patinated nearly white in some parts. The third is a yellowish quartzite one from a sandy, drifted field near Keystown, Saskatchewan, and by consulting the scale it will be found to be a shade over five inches long. Measure five inches on your hand and get some idea of the size. The fourth is made of maroon-colored quartzite and comes from a deeply drifted field near Aylesbury, Sask. In Fig. 57 is shown a grey quartzite specimen found in the valley of the Wascana creek, not far west of Regina, Sask. by Douglas Gilroy. The knife and disc-shaped tool previously shown in Fig. 31 are of Chellean type. The knife is from Estevan and the disc from Stony Beach, both Saskatchewan specimens.

### ACHEULEAN TYPES

The Acheulean type was just an improved form of the Chellean. The *coup-de-poing* was still the most important tool but a great improvement had taken place in the art of chipping. The hand axes had a



Mullen Teeth  
Granger Collection



sharper, straighter edge and were made thinner. All of both faces was trimmed, and even the base was brought to a finished edge. Where the shape became broadly oval the French called it a "limande", the name of a flounder or flat-shaped fish, which is a very apt description. A curious feature of the Acheulean limande or disc forms of that age was that the edge formed a reverse curve, generally the opposite curve to the letter s. It looked as though the tool had been grasped by both ends and given a slight twist. A few were twisted the other way, and some attribute the difference to the worker being right or left-handed when chipping. This is called the Acheulean twist and is found on some of the Saskatchewan specimens.

Both the Chellean and Acheulean cultures included disc tools. The Chellean disc had a wavy or zig-zag edge owing to the flakes being coarse and taken from opposite sides alternately. The Acheulean disc was thinner and the edge was finished with smaller flakes so that it was straighter.

In Fig. 58 are shown four hand axes of the Acheulean period. The first is from Verigin, Sask., the second from Swanscombe, Kent, England, the third from Cagny, Somme, France, and the fourth from Craik, Saskatchewan, where it was found by Rev. G. W. Rhodes. The two Acheulean hand axes in Fig. 59 are from south of Meyronne, Saskatchewan, and from Swanscombe, England. The first is made of a creamy silicious stone of fine texture and somewhat translucent, and the other of a fine grey flint with practically no patination. Toward the close of the Acheulean period, flake scrapers began to appear and a few hand axes had one plain flat side with a bulb of percussion which showed that they had been made from flakes and were not strictly core tools. I have a very fine example of the latter which was found near Aylesbury, Sask.

100

1



Fig. 48

### MOUSTERIAN TYPES

The Mousterian type is entirely different from the two preceding types in one regard. The Chellean and Acheulean types were almost exclusively core tools worked on both sides and with both sides convex. For a while in Mousterian times they continued to make small hand axes similar to those of late Acheulean times, but these dwindled to ridiculously small sizes of almond shape and finally disappeared. A few of the transition pattern were found which, while they were plainly hand axes, yet one side was just one flake with a bulb of percussion.

The new technique of Mousterian man, or Neanderthal man as he is often called, is that practically all of his tools are flake tools. Some say that one side of a nodule of flint was chipped into a desired shape and then with a well-directed blow a flake was knocked off, giving a complete tool, one face of which was flat as it came away from the nodule and the other worked as it had been prepared on the nodule. I think that in all cases there would have to be a little retouch round the edge and in many tools, especially the scrapers, the flake was detached first and all the trimming of the other face done afterwards.

If a large flake were chipped to a sharp edge, down one side, and had the other side left thick and blunt for a hand hold, this would make a side scraper, which is one of the most characteristic of the Mousterian tools. Two fine specimens of these have been shown in Fig. 27 and 28, and give a better idea of the tool than any description could. In both cases the side that is not seen is flat. The flat side of the one in Fig. 27 is shown in Fig. 60 and the mark of percussion where the blow was struck to detach the flake can be seen at the right side of the picture with radiating ripples.

Fig. 48



In taking the photograph for Fig. 60 the light seems to have fallen on the specimen in such a way as to unduly accentuate the ripples. In reality this face of the specimen is smoother than it appears in the picture, but I am glad the ripples are shown so plainly.

Two other fine specimens of thick heavy side scrapers which bear a remarkable resemblance to each other and which are shown half size are seen in Fig. 61. The one at the left is a flint one from Le Moustier, France, and the one at the right is a grey quartzite one from Lumsden, Saskatchewan.

If a flake is long and narrow and has one or both ends rounded by steep chipping, forming a scraping edge where it meets the flat side, it is called an end scraper. Good examples of these have already been shown in Fig. 26 and Fig. 29.

Where a flake has two sides trimmed to a sharp edge converging to a point at the top and making a more or less triangular tool, it is called a Mousterian point. Two good, light-colored quartzite specimens of these are shown slightly less than half size in Fig. 62. The lower view shows the flat side of each and the upper view shows the chipped side.

The lower right one shows the bulb of percussion at the middle of the base. These are both Saskatchewan specimens, the first found by the author at Tribune and the second by Dr. Kitley at Riverhurst.

The British Museum guide speaks of large, uncouth Mousterian planes or scrapers which somewhat resemble a horse's hoof. The specimen shown half size in Fig. 63 seems to fit that description. The reverse side is flat and smooth, being part of the original surface of the quartzite pebble from which it was made. It was found south of Estevan.



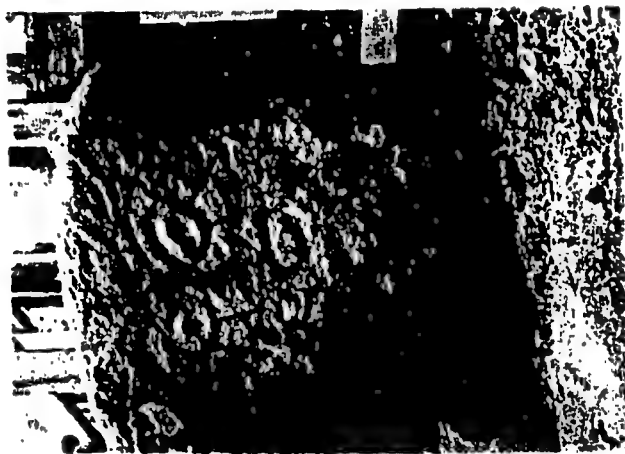


In Fig. 64 are seen two Mousterian side scrapers and two Solutrean tools, which will be referred to again a little later. The black side scraper, at the bottom left, is from P'apot, Saskatchewan, and the patinated one at the right is from Le Moustier, France.

A few spokeshaves, end scrapers, and bone tools have been found in Mousterian deposits.

In Europe, Mousterian tools were made by men of the Neanderthal race, so named because the most notable skull of a man of that race was found in a cave at Neanderthal, Germany. Similar skulls were found at Le Moustier, Gibraltar, Palestine, and Peking. These men had large, long heads with retreating foreheads, immense brow ridges and no real chin. Their thumbs were very clumsy, more like big toes, and could not face squarely to meet the finger. They walked with head thrust forward and knees bent.

Professor Sollas mentions the finding at La Quina in a Mousterian deposit of a number of spherical balls of limestone nicely shaped by man and believed to have been used as bolas. They probably had been encased in rawhide so that they might be attached to the ends of branching cords. When thrown like a lasso at an animal the balls entwined the cords around the feet of the animal and thus ensnared it. The size of these balls, which frequently were made of limestone, varied from 35 to 90 millimetres. This is the exact size of the two limestone balls shown in Fig. 13, and the one larger black one just above in the same picture. The two limestone balls are beautifully rounded and come from a collection of eleven found not far from a school on the road from Swift Current to Cadillac. The black one was found about four miles north of Pattee siding.



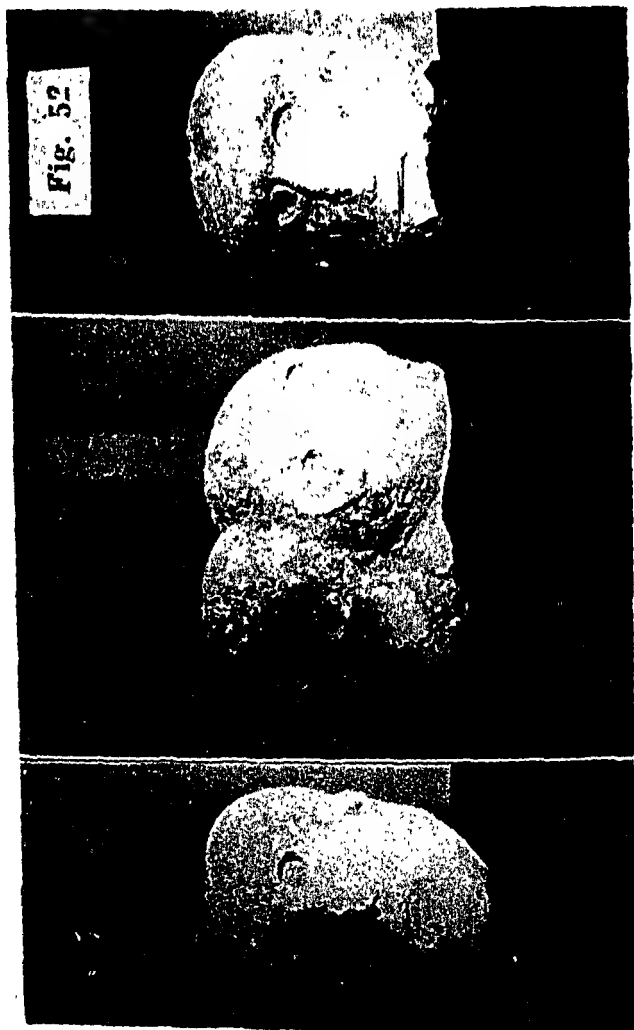
### AURIGNACIAN TYPES

Aurignacian tools and artifacts were made by men of the Cro-Magnon race, tall, upstanding fellows with fine foreheads and chins, who superseded the crude Neanderthal men. These are the first representatives of the genus *homo sapiens*, the true modern man.

Many tools of this period are merely improved forms of similar ones in the preceding period. We find many long, pointed blades with one side consisting of one flake and the other side made by perhaps three flakes, all extending practically the whole length of the blade. Some of these have been modified into end scrapers, some of them double-enders. In Fig. 65 we show several specimens with the long flakes. At the extreme left is a highly patinated Aurignacian blade from France (25,000 years old) and beside it a very similar blade from Saskatchewan which has reached the cloudy blue stage of patination. At the extreme right is an Aurignacian end scraper on a blade patinated white, and to the left of it three Saskatchewan scrapers with similarly long flakes found respectively at Baildon, Osage, and Mendham. The one from Osage again has the delicate blue patination.

High back scrapers, sometimes called planes, have one side flat and are pretty thick, with fairly long flakes coming up the sides. If quite small they are sometimes called scratchers. Two large high back scrapers are shown in Fig. 66. They come from Ponteix and Chaplin. Some scratchers can be seen at the right of the top row in Fig. 29.

It was during the Aurignacian era that spoke-shaves or incurved scrapers first came into general use. These have been previously mentioned and specimens shown in Fig. 30. They can be compared with those illustrated in various standard works. The one at the right, in the lower row, is a French specimen.



The Aurignacians were the first to make bone spear heads with cleft bases. They also made shaft straighteners or batons-des-commandement from deer horn, bone, or ivory, and did much engraving of pictures of animals on these tools and on other pieces of bone, horn, or stone. To do this engraving they invented several types of flint gravers, the commonest form of which was a blade with a tiny transverse chisel end. The reader can refer back to the shaft straightener among the bone tools from the midden and also to the bone spear head found there.

Several scrapers shown in Fig. 29 are of Aurignacian type. The one next the white one on the left is an Aurignacian one from Dordogne, France.

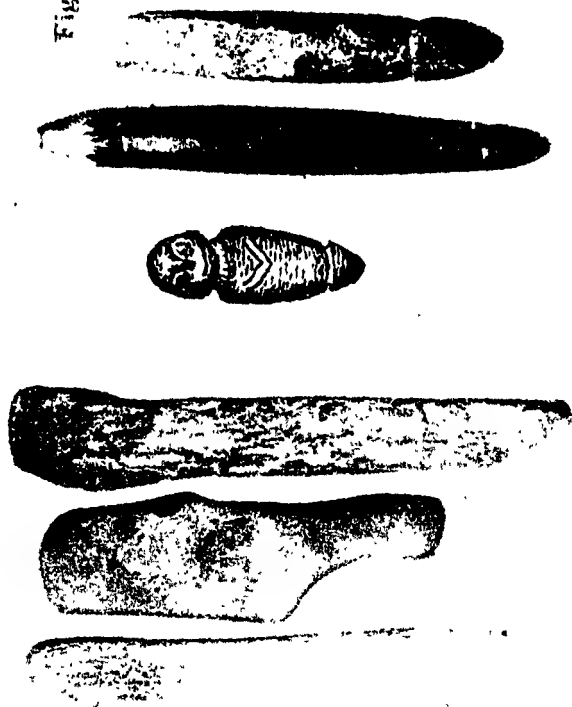
In the picture of the Magdalenian tools in Fig. 66 the neat little graver at the right is so much like an Aurignacian graver I have from Dordogne that it would easily pass for the same.

The Aurignacians made a number of bone awls from bones of small animals. Choosing a bone which had a joint at the end to serve as a handle, they rubbed the other end to a sharp point, making a tool similar to the one shown at the left side of Fig. 48 or similar to the one found at Caron, shown in Fig. 43.

During this period they developed a desire for ornament, which they gratified by drilling holes in teeth, shells, fish vertebrae, or ivory pendants, and forming them into necklaces. They also cut strips of bone or ivory and after rubbing them into cylindrical form they cut them with flint knives into sections which were drilled to form beads.

The Abbé Breuil doubts whether the bone points with a split base were used as arrow or spear points, and thinks it more likely they were meant as bodkins to carry a leather thong.

Fig. 52



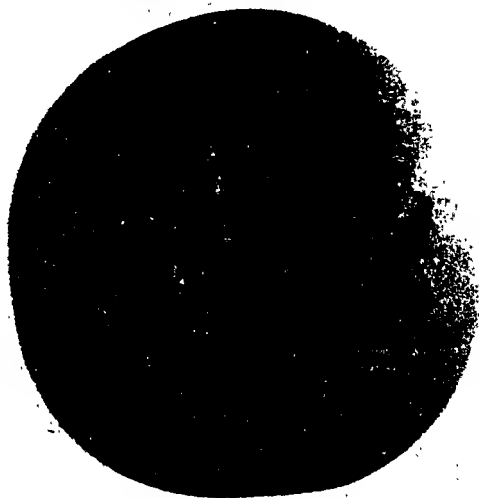
### SOLUTREAN TYPES

The Solutrean people are supposed to have been a rather more warlike tribe who pushed into France from the east, crowding the Aurignacian people over the Pyrenees, whence they later returned with a modified form of the Aurignacian culture which we call the Magdalenian. The Solutreans had their own way of life and their own industries. They did hardly any bone work and comparatively little art work, such as engraving or cave paintings. They, however, introduced a finer form of flint chipping. Instead of knocking off flakes with a hammer stone, they did a finer job with pressure flaking. They used fine little tools of bone (possibly like those found in our middens) and, by pressing on the edge of a flint tool, they were able to take off very fine flakes and thus they produced spear heads finer than anything preceding them and equal to the best Neolithic specimens from Egypt. Most of their spearheads are of two forms, both of them pointed at both ends. The narrower ones were called willow-leaf points and the wider ones laurel leaf points. Both names are self explanatory. They also made fine spear heads with one shoulder and a tang and some of these were flat on one side. One Solutrean spear found in France was over thirteen inches long and so fine and thin that it must have been meant for ceremonial use only. We have already shown in Fig. 1 some Saskatchewan spears, marvellously like the illustrations of French Solutrean spears. In the picture of the scrapers in Fig. 29, the one in the middle of the bottom row is a Solutrean scraper from France, while the one on its left is a dark red quartzite scraper from Chamberlain, Saskatchewan.

Again, in Fig. 64, we see in the upper left corner a French Solutrean laurel leaf which does not show extremely fine flaking, and a fine chalcedony one from



Fig. 54



Brora, Saskatchewan, which is a close mate. In the same picture is a black side scraper from L'apout, Saskatchewan, and a light patinated side scraper from Le Moustier.

In "Primitive Hearths in the Pyrenees" by Sawtell and Treat, the statement is made (page 34) that the earliest bone needle pierced with an eye that was ever found occurred in a Solutrean deposit. We know that the Aurignacians made bone pins nicely rounded and pointed and some of these had two grooves around the larger end. It is possible that these grooves were merely for ornament but there is also a distinct possibility that they were made for the purpose of attaching a fine sinew to the pin so that it might be used as a needle in sewing hides together. The making of the eye would be a great invention for those times. Notice the bone pin shown in Fig. 44 at the right among the bone tools found by Mr. Gunn at the first midden.

### MAGDALENIAN TYPES

The Magdalenians who succeeded the Solutreans brought back all the arts of the Aurignacians in modified form. They made finely engraved specimens of the baton-de-commandement or shaft straightener. Their spear throwers sometimes embodied animal forms or were engraved with pictures of animals. Their flint work was rather inferior, as can be seen by a look at Fig. 67.

At La Mouthe in France was found a stone plate very similar to the two Saskatchewan specimens shown in Fig. 13. It is thought to be a lamp. In the picture of Magdalenian relics, the black scraper in the centre is a French Magdalenian specimen. The red quartzite one on its right is from Chamberlain, Saskatchewan.



The little French graver on the extreme right is so much like a French Aurignacian graver which I have that the one illustration would answer for both, although the latter is a little larger.

The other two tools in the picture are from Swift Current and from the author's farm at Tregarva. Some of the bone tools found in our middens are like the Magdalenian, especially the shaft straightener. The small, notched or denticulated scraper in Fig. 29 is like some illustrated in Professor Osborne's book as Magdalenian.

The Magdalenians made bone and ivory pendants and also bone needles and buttons. In Saskatchewan we find stone buttons similar in appearance to the old barrel button that used to be used on fur coats. These consist of a piece of stone two or more inches in length, one side quite flat and the other rounded, and tapering towards both ends. A small groove is made over the top of the rounded side at the middle but does not appear on the flat side. One of these buttons is shown in Fig. 13 at the lower left corner. Above it are three fine stone discs possibly used for a game. In the upper left corner is a rostro-carinate tool (eagle beak) made of olive green jasper. See standard works for rostro-carinates.

### AZILIAN TYPES

The Azilians were especially noted for the painted pebbles they made. These were about two inches in diameter and had curious markings on them, which have been thought by some to be the beginning of an alphabet. It is more probable, however, that they were merely conventionalized representations of the human form. While we have no painted pebbles, yet there are places in British Columbia where very similar markings are found on the rocks and something similar exists at Roche Percee.

Fig. 58



Another thing which is especially notable is the flat deer horn harpoons which they made. If there ever were any of those here they would soon crumble in this climate.

The little rounded flint scrapers which were characteristic of the Azilians are very plentiful here.

Small geometric forms of flint were common among the Azilians and may have been inserted in the sides of bone spear heads as barbs. Some of the collectors claim to have found them here, but I am not sure that I have identified them. In fact, as far as my observation goes we have no very sure evidences of Azilian culture here.

I have among my specimens three stones pieces, all of the same type, except varying somewhat in size and color. The largest, a light brown quartzite, comes from Pense; the smallest, a light grey one, comes from south of Meyronne; and the medium sized one, quite black, comes from a field near Ponteix. The black one and the grey one are shown with some bone pieces in Fig. 69, but have no connection with them. As can be seen from the picture, the stones are smooth pebbles rubbed to a point at each end and polished. The same description applies to the other one. I had no idea as to where these might be classed or what their use might be, although they looked artificial.

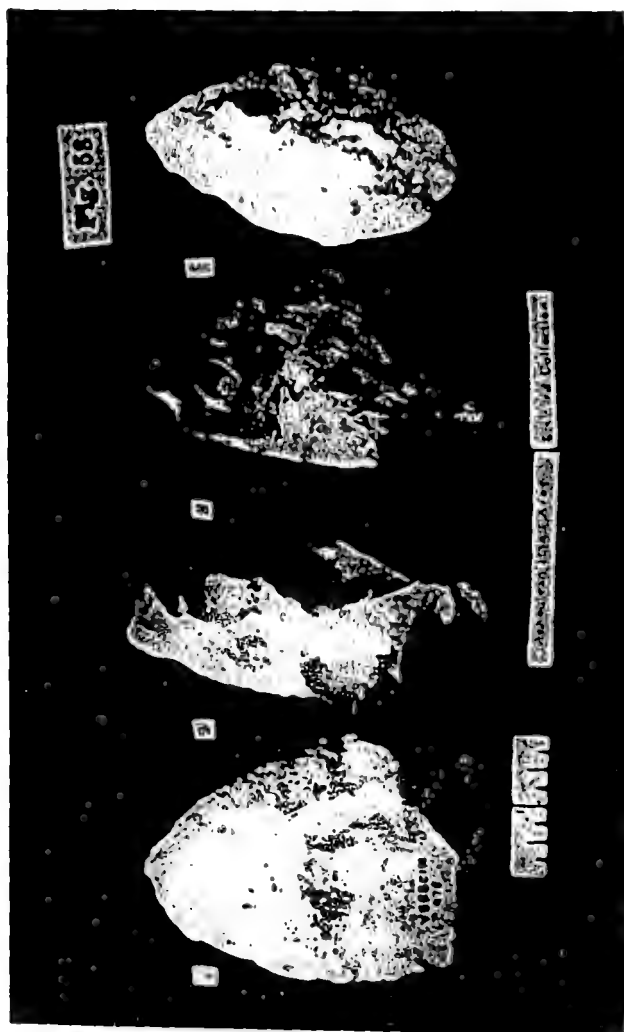
However, recently I was reading near the beginning of the second volume of "Human Origins" by Professor McCurdy, and I came across a sentence which seemed to throw a little light on the classification though it still gave no clue to the use. I quote the sentence verbatim as follows: "The little flat Azilian pebbles, polished at the end by utilization, sometimes on one side, sometimes on both, and in such a manner as to form a cutting edge, should



not be confused with the polishing employed in Neolithic times as a means of shaping and finishing implements." There is just a possibility that these curious little polished stones may be of the Azilian type mentioned.

In the preceding section, mention was made of the three small discs and it was suggested that they might be for playing a game. There is another idea regarding these discs which I got from an old Indian. On one occasion he showed me with very impressive manner a shiny black stone disc which he seemed to treasure highly. He went down to the brook and got a can of water. On his return he pointed to a spot on the back of his hand and, dipping the stone in the water, he placed it on the spot indicated on his hand. He then gave a little pull at my coat. I inferred from this pantomime that the spot indicated on his hand might be a boil and that the wet, cool stone was to act as a poultice, and that the little pull he gave on my coat indicated the drawing action of the poultice. Consequently, I often speak of these discs as poultice stones. Mr. Bell, of Qu'Appelle, showed me a similar disc made of a cross-section of the point of a horn.





## Human Skeletal Remains

It is a noteworthy fact that of all the famous skulls and skeletal remains of fossil man which are well known to scientists, by far the greater number and those of most significance have been found in caves, which accounts largely for their preservation. The Peking skull, possibly the oldest so far recovered, was not only petrified but embedded in limestone in the cave where it was found. The Rhodesian skull was found in the Broken Hill mine and it and other human and animal bones were so impregnated with mineral salts that they would well repay for smelting them, in fact no doubt some went through the process. The Neanderthal skull of Germany, the Spy skull of Belgium, as well as the Gibraltar skull and that of Palestine, were all found in caves and were all of the Neanderthal race. The heavy lower jaw of Mauer was found deep down in a gravel bed and no doubt found its resting place there before the inclement weather of the Glacial period drove men to inhabit caves. The same is true of the skull of the ape-man of Java (*Pithecanthropus erectus*), which was found after a purposeful search by Dr. Dubois in the gravel of a river terrace.

A consideration of these facts will show how unlikely it would be that remains of ancient man should be found on these flat prairies, where no caves exist to preserve them from decomposition, and where the whole surface of the land was torn up by the ice sheet of the last glacial epoch.

On page 109, "Sons of the Earth", Kirtley F. Mather says: "The locality of Piltdown is only a few miles beyond the farthest reach of the last ice sheet of the Pleistocene period. Had Piltdown been covered by the ice sheet, the record of ancient humankind there,



as elsewhere, would have been obliterated by the glacial plow." The Piltdown skull was found in England in a surface deposit of gravel and had a very apelike jaw and teeth.

Those who are opposed to the idea of there ever having been a Paleolithic period, with very ancient tools and weapons in this country, make much of the fact that no skeletal remains of man have so far been found here that are much different from the races that have lived here in modern or recent times. They further point to the fact that there are no traces in North America of anthropoid forms that might have been ancestral to men of a type similar to the Paleolithic races of Europe, if such men had ever been indigenous here.

There is always the possibility, however, that if none of these races were indigenous to America, some of them might have emigrated here and that, owing to climatic and geological conditions, all traces of them have disappeared.

As a possible indication of the existence here at some time in the past, of a race differing from the present races, I might cite the finding of the top part of a human skull of peculiar appearance on the bench lands of the foothills of the Rocky Mountains, near High River, Alberta. This skull was found, exposed at or near the surface of the ground, by Mr. Gould, an enthusiastic collector of stone relics, who later presented it to me. While it was at no great depth when found and was in a good state of preservation, yet being in a mountainous region, there is quite a possibility that it might have been buried at a greater depth and have been recently exposed by erosion, which is much greater in such a place than on the plains. However that may be, the striking thing about this skull is its exceedingly primitive appearance.

**Fig. 60**

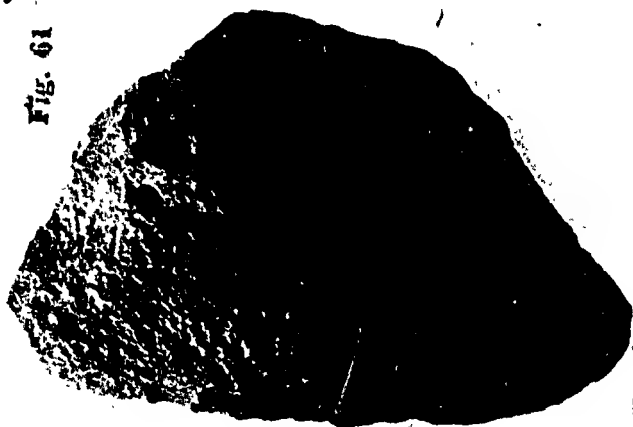
From the side view presented in the photograph it will be apparent that the top of the skull shown is broken off just opposite the eye socket at the point where a natural seam occurs, joining the projection coming downwards from the outer end of the brow ridge with the projection coming up to meet it from the cheek bone. The break then continues back from the temple, following the side seam of the head, or the squamous suture, the crimped edge of which can be plainly seen in the picture.

The supra orbital prominence or brow ridge over the eyes is strongly developed and is continuous the whole way across, showing no division at the root of the nose. The forehead is very low and retreating inasmuch that it would be impossible to place this skull cap in such a position that the forehead would look at all like that of a modern man.

The width of the skull is approximately seventy per cent. of the length, which would classify it as being of the long-headed or dolichocephalic type.

All of these characteristics, the heavy continuous brow ridge, the low retreating forehead, the long-headed quality of the skull and its extra thickness, all point to a resemblance to the Neanderthal skull, and while the brow ridge is not quite so prominent as the original Neanderthal skull, yet we must remember that none of the later skulls of that race, such as those found at Spy, Gibraltar, or at La Chappelle-au-Saints, were quite as extreme in that regard as the original type found at Neanderthal. What a pity that we could not have found the lower jaw of this High River skull, or some of the teeth, to see if the teeth or the chin were of the true Neanderthal pattern! For fear the reader may not be aware of the fact, I may say that the true Neanderthal man has no reflex curve on his

Fig. 61

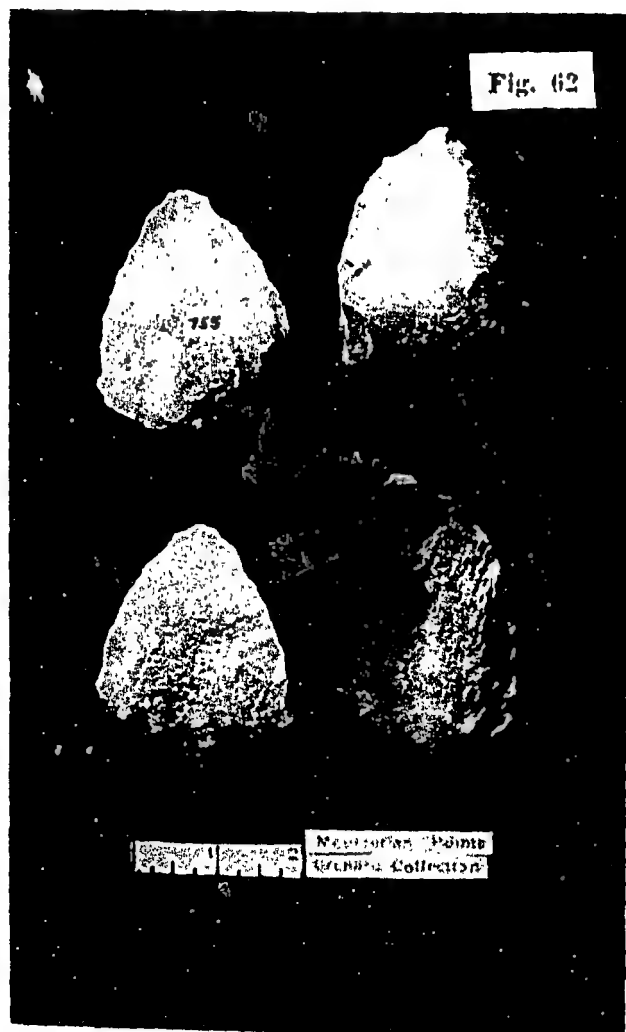
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Mousterian Side Scrapers  
Orchard Collection

chin, but that it goes in one gradual curve back from the base of the teeth to the lower edge of the jaw, similar to that of an ape.

In the brow ridge of this High River skull just at the left side of the nose, is a deep wound evidently made by a flint arrow head which must have penetrated the brain cavity. This no doubt was the cause of the death of this primitive man. However, the important thing is the curious resemblance of this skull to a Neanderthal one.





## Doubtful Specimens

Probably every person who has started to collect or study stone age specimens has at some time or other been confronted with a problem as to whether a certain object is or is not a true artifact. That is, he has to decide whether the object could be used for a tool and also whether some human being made it for that use. There are, no doubt, many pieces of stone or flint which in their natural form could be used for various purposes but which show no signs of ever having been used by man and no signs of any work having been done on them to fit them for a particular use. Such specimens are not true artifacts.

Perhaps the first criterion to be considered in forming a judgment in such a case is the material of which an object is composed. A Paleolithic man made all his tools by chipping and therefore must choose for this purpose a material hard enough and homogeneous enough to give clear flakes when struck. Flint is no doubt the best substance for this purpose but a fine-grained quartzite does quite well, also a glassy lava such as obsidian is excellent. Coarse granular stones such as granite cannot be worked satisfactorily in this way and I do not think I ever saw an authentic tool made of granite, except a hammer. I would also be very doubtful in a case where the material was not hard enough to retain a sharp working edge or point for long use.

The same is true when considering the problem of grinding a tool into shape. The material must be tough as well as hard and usually fine in texture and capable of taking a polish. The most common stone used to make axes or celts is a fine-grained black stone, which I have been unable to get identified; but jadeite or a

Fig. 63



Orchard Collection

fine grained porphyry are also used. I would be very doubtful of any stone which breaks too easily or which has a fine powdery look on its surface.

If the material of the supposed artifact seems to be of a suitable kind, the next thing to be decided is whether any purposeful work has been done on the object to bring it to a desired shape. Hard stones frequently are dashed against one another in the course of nature, and have chips knocked off. How, then, can we determine whether chips have been removed intentionally or accidentally? When a flake is knocked from a piece of flint a slight hump will be found on the flake at the place where the blow was struck which detached the flake, and this is called the *bull's head* of percussion. The corresponding hollow on the other part is called the *negative bull's head* of percussion. Some writers say that if these marks are present it is a sure sign that the blow was intentional. Generally ripples concentric on this point can be seen in the surface of the flint and sometimes fine lines can be seen radiating from this point and crossing the concentric ripples. In flint specimens the concentric circular lines are more prominent than the radiating lines while in quartzite specimens the radiating lines are quite clear but only occasionally are the concentric circles much in evidence.

By observing these marks it is possible to see the direction of the blow which knocked off the flake and if a number of flakes are knocked off in succession around the object with the flakes pointing in different directions you can be sure that some person has done this intentionally, especially if the taking off of these chips has tended to produce a useful sharp edge or point on the object. While these indications are very clear and distinct on flint they are not nearly so marked on quartzite and will take a little closer observation.

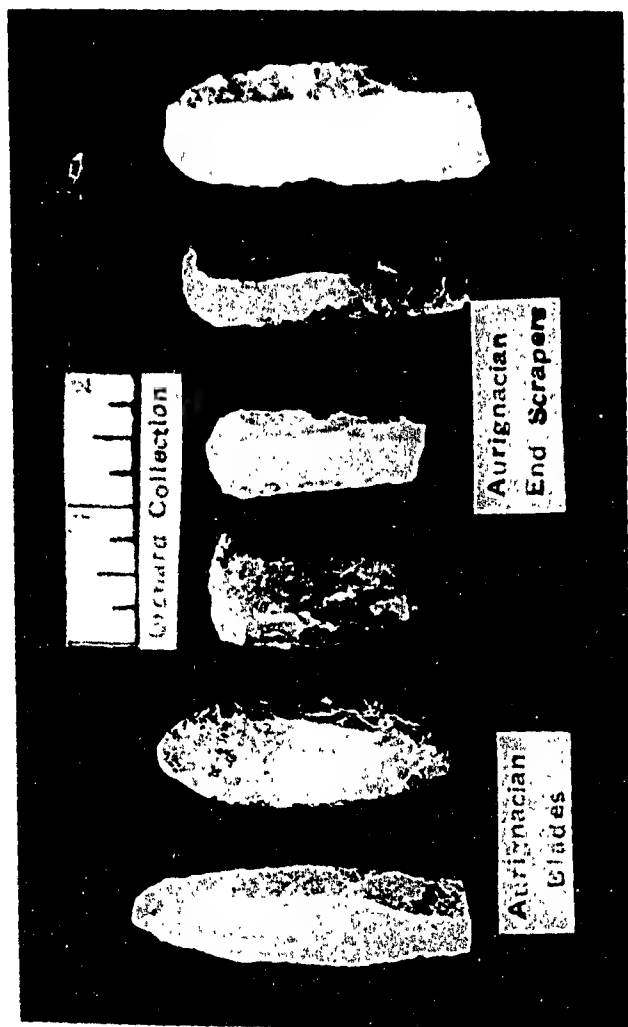


The third point to be considered is whether the object when finished is of such a shape that it could be used for some necessary purpose and, further, whether there is any sign of wear to show that it has really been used. On one occasion I found on one small field ten pieces of quartzite all the shape of a saucer, that is to say, each was a slice knocked from a large pebble of quartzite so that one side was perfectly flat and the other side convex and smoothly rounded, being part of the outside crust of the original pebble. They were quite circular and about three or four inches in diameter, in fact, they were just the shape of a plano convex lens. The edge was quite sharp all around and on the edge of each one was a spot with radiating lines showing where the blow was struck to detach the flake. Any one of them could have been used to cut like a knife or chop like an axe or dig up the ground.

I did not carry any of them away to keep as specimens because there was no sign of secondary chipping nor any marks of wear to indicate that they had been used. Since then I have obtained from one of the bone middens a tool exactly the same except that this one has been used so much that the edge on all sides is very much worn and distinctly smoothed and rounded. I am now convinced that all of the above mentioned flakes were purposely made for tools. The large flake with worn rounded edge is shown in Fig. 13 at the middle of the right side. It was dug from the midden by Mr. Michell.

Many Neolithic tools which were finally polished were first largely shaped by pecking. Many axes or celts as well as hammers and chipping hammers show many fine dents as remnants of the pecking process, even though they have been polished. I think in the picture of the chipping hammers, Fig. 25, you can see the pecking in the central depression of the smallest one. Some of the axes in Fig. 20 also show pecking.

Fig. 65



To sum up, then, the points to be observed in passing judgment on a specimen: (1) See that the material is suitable for working and durable enough to be worth working. (2) See that purposeful work has been done either by chipping, pecking, or grinding. (3) See that the finished object is fitted for some probable use. If these three requirements are met it is safe to call the object an artifact, however strange or new it may appear.





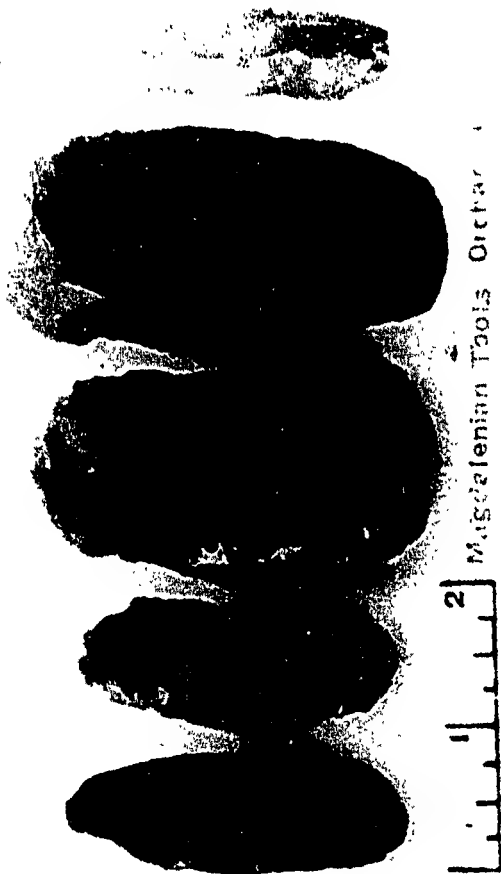
## What Does It Mean?

In the preceding pages I have attempted to give the reader some brief idea of the European classification of the flint stone and bone relics of the various periods of the stone age and have shown that we in Saskatchewan have specimens closely resembling all of their types. It is true that some of ours are made of quartzite but this is not unknown in Europe, especially in places where flint is scarce. The question now arises as to whether there is any relationship between the earliest peoples of this continent and those of Europe. If we answer this in the negative, then we must believe that it is possible that different people on two widely separated continents, who never had any communication with each other, might, to meet the necessities of their life, invent and manufacture eight classes of tools corresponding with a fair degree of exactitude with eight classes made on the other continent. We could imagine that, by accident, these widely separated peoples might make some tools alike on both continents, but it seems almost too much to expect such numerous coincidences.

Is it possible that in the remote past these continents, now widely separated by water, may have been joined by land connections which would enable people to migrate from one continent to another, carrying with them the arts of making certain kinds of tools, and that this might account for the similarities we find?

It is well known that Behring Strait is at present shallow, and there is good reason to think that at some time in the past there was a land connection which enabled animals such as the mammoth, and possibly others, to pass over from Siberia to North America, and if animals, why not men? Then again, we find skeletons of men of the Neanderthal race in France,

Fig. 37



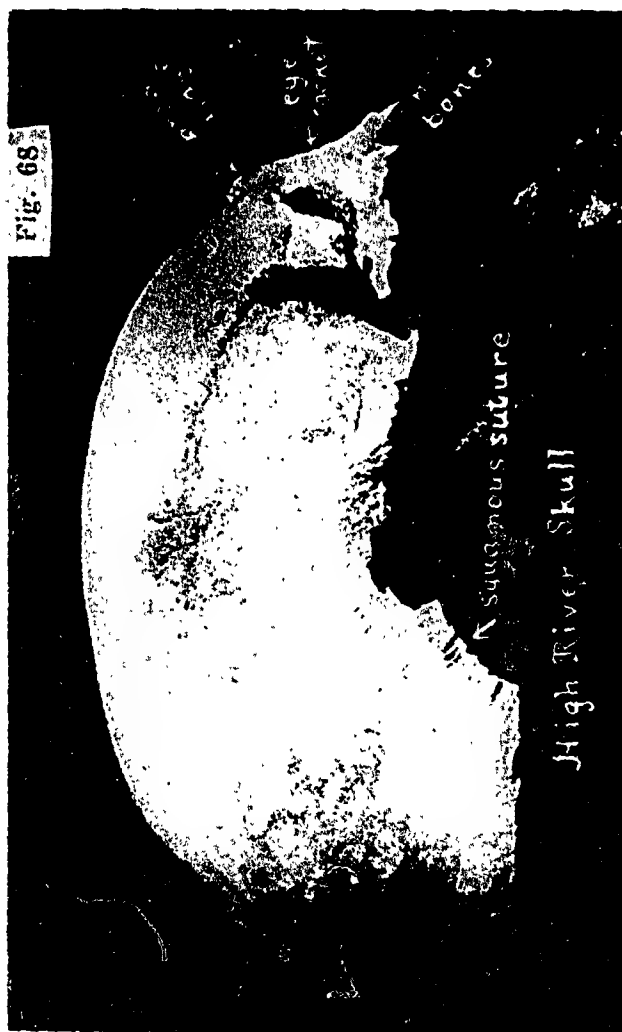
Magdalenian Tools Orchar

Spain, Palestine and China, and Mousterian tools in France, Egypt, Palestine, China, and the desert of Gobi. Does this not suggest that when certain tribes have wandered over two large continents they may have drifted into the third? We certainly have Mousterian types of relics here.

Then again, the remarkable similarity of the tools, ornaments and engravings of the Eskimo to those of the Magdalenians of Europe would cause one to wonder whether there was not formerly a land connection from Europe across by Iceland, Greenland and the Arctic Archipelago. Possibly when Atlantis sank beneath the waves there might have been a lesser subsidence toward the Arctic region which left the higher parts at the north remaining as islands. The Magdalenians lived with the reindeer and musk ox in Europe and now the Eskimo have the musk ox and a very similar animal to the reindeer here in the north. If this land connection existed and was cut off about the time of Atlantis, it might have allowed the Magdalenians to come across after the game animals, and the subsidence might have cut off the connection before Azilian times, which would account for the lack of Azilian relics.

This is somewhat of a speculation, but it is not impossible, and more than one noted writer has entertained the idea.

However, if the reader can believe that in Europe certain races invented and made, *during a period of at least one hundred thousand years*, eight different styles of tools, and that at a much later period other races on the continent of America went through all the same stages, *in a thousand years or less*, without ever coming in contact with any of the races of Europe, he is at liberty to do so. For my part, the best I can do is



to give a Scotch verdict, "not proven", but I lean strongly to the view that there must have been communication.

In his book, "Sons of the Earth", page 204, Prof. Kirtley F. Mather says:

"Surveying all the data, it would appear most likely that man crossed from Asia to North America at or very shortly after the climax of the Wisconsin glacial stage and spread over the available land while the ice sheets were melting away. If this is correct, the first families of America reached this continent thirty or forty thousand years ago and homo sapiens has dwelt in America nearly or quite as long as he has lived in Western Europe."

Fig. 69



## Chronology

One evening I showed some of my ancient Chellean hand axes to a bright young lady and told her that the scientists believe that these are about 100,000 years old. She smiled a tolerant smile and said thoughtfully, "I don't think I just believe that. How do you know?"

Well, to answer that fully would make a considerable book of itself and could not be attempted in the compass of a small volume like this. Moreover, some writers doubt the wisdom of trying to fix exact dates, because in any event a period of 100,000 years is quite beyond the comprehension of most of us. A thousand years is a small item geologically, for the elevation or subsidence of land masses, the erosion of river beds, or the deposition of large masses of silt in lakes or deltas require many thousands of years and these are the main evidences we have to use in determining the age of specimens found in various geological formations.

However, I shall attempt to give in brief form one of the most exact methods used to arrive at a partial estimate and the reader can then see that all such assertions are not pure guesswork.

In Southern Sweden, near Estof, there are several deposits of banded or varved clay laid down in successive layers by the outwash from the edge of the ice sheet as it melted year by year and retreated northward through Sweden, each layer representing one year's deposit. These bands or layers of clay are very clearly marked, for in the hotter part of each year the rush of water was strong enough to bring down sand and coarser silt, while as the rush subsided the water brought down only fine clay, so that each layer com-



sisted of a coarser part and a darker colored finer part. When the summer was longer and warmer there was a deeper layer and in a shorter or cooler year the layer was thinner. Baron de Geer thought that if the layers of clay deposit through the whole length of the country were counted it would be possible to obtain a pretty exact idea of the number of years it took the ice sheet to retreat. He found, however, that the deposit was not continuous nor complete in any one place. But, by observing the sequence of large and small layers in one place and matching them with a similar sequence of layers in another deposit farther north, he could tell which of the layers in the second deposit were additional to the ones in the first deposit, and thus formed a continuation of the series. He therefore counted the layers or bands in the clay deposits from Estof to a place called Ragunda, where the banded clays ceased. Beyond this, he was able to count the layers of silt deposited in the lake at Ragunda.

This lake had been covered by the ice sheet until the glacier had retreated that far north, and then began to receive yearly deposits of silt. This lake was now dry. He counted 5,000 layers from Estof to Ragunda and 8,500 beyond that, making a total of 13,500 years for the full retreat of the ice from Estof. Now, in Southern Sweden, as soon as part of the land became free from ice, it was occupied first by people who were in the Azilian stage of culture and later those of the Maglemose stage. From this we may conclude that these Azilians lived in Southern Sweden about 13,000 years ago and, as the Neolithic culture succeeded the Azilian, we are justified in concluding that the Neolithic culture came to Sweden about 10,000 years ago.

When the ice sheet was at its greatest extension, it went as far south as Magdeburg or a little beyond. By comparing the distance from Magdeburg to Estof

with the distance of the retreat north of Estof it is possible to form some idea of the time it took for the ice to retreat from Magdeburg to Estof, provided the rate of melting was about the same in both cases. However, there is not much doubt that the rate at the latter stage would be much more rapid than when the melting began.

De Geer later came to America and worked with E. A. Antevy investigating varved or banded clays here. They found that, judging by the different sizes of the bands, the weather here during the retreat of our ice sheet must have corresponded with that in Europe about 89% of the time.

I might here introduce another method of reckoning time archaeologically, for which I am indebted to Edward Clodd in his fine little book, "The Story of Primitive Man". His method of reckoning is not so definite and exact as to an actual number of years as the preceding example, but it does furnish sure evidence of the elapse of a very long period of time since the laying down of certain layers containing artifacts and remains of ancient animals contemporary with the men who made the artifacts. These deposits occur in a cavern called Kent's Hole near Torquay, Devonshire, England.

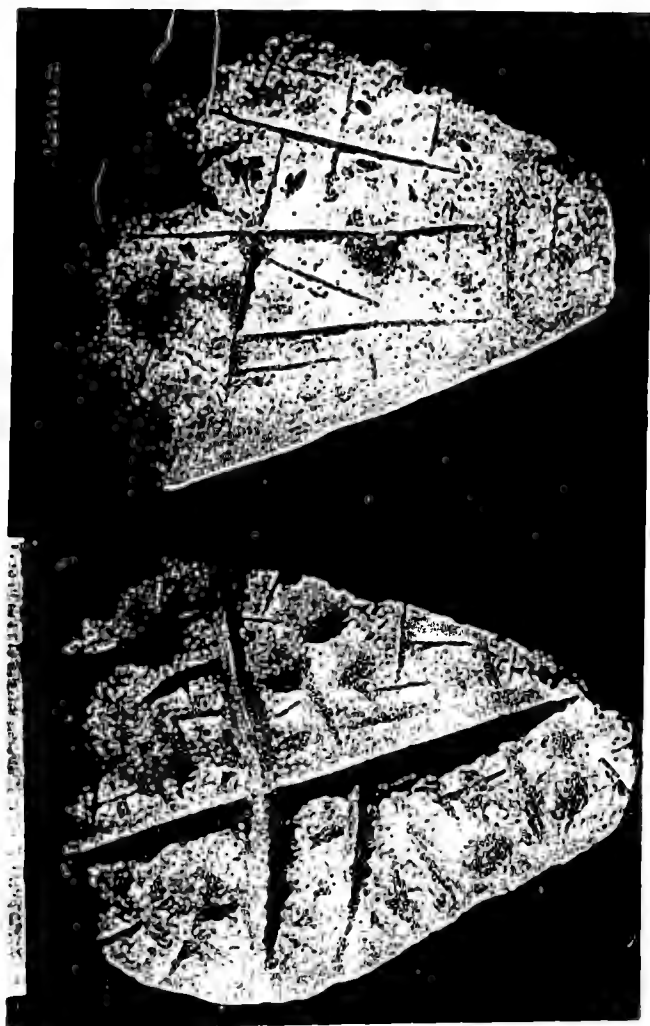
This cave was explored by the Rev. J. McEnery and he found first a layer of blocks of stone fallen from the roof of the cave. Next was a layer a foot thick of black mould which was mainly vegetable matter. The third layer was a floor of stalagmitic limestone from three inches to five feet thick. Below this was a black band, mainly charcoal, which was four inches thick in one part of the cavern. The fifth layer was red loam called cave earth. The sixth layer was of limestone twelve feet thick in places. The lowest layer was a dark red sandy deposit called breccia.

The black mould contained bronze tools and Roman pottery with stone and bone implements. The next three layers contained bones of extinct animals such as the mammoth, the woolly rhinoceros, the cave bear, etc., together with tools of flint, and in the black band were a bone awl, a bone harpoon, and a bone needle. In the breccia were bones of the cave bear and flint and chert implements of crude form.

The reader will understand that the two floors of stalagmite limestone have been formed by the dripping of water containing lime from the rocks above the cave.

Mr. McNery found that a man named Robert Hedges had visited the cave in 1688 and had carved his name and the date on top of the stalagmites.

In 1825, when Mr. McNery came to explore the cave, the deposit of lime from the drip on top of the name was only about one-twentieth of an inch thick and only partly obscured the letters—this after two centuries. At the same rate, how long must it have taken to deposit the two layers of stalagmite mentioned above, to say nothing of the other layers above the breccia. Even supposing that at some time in the history of the cave the deposition of limestone was twenty times as fast as during the later period, it still would indicate a very long period of time since the crude flint tools were embedded in the breccia on the original floor of the cave.



## A Monument?

Some years ago Mr. William Dolan of Girvin, Saskatchewan, found in a ravine in his pasture field the stone pictured in Fig. 70. It seemed a curious thing and was thought by some to be a rude face. However, both sides were carved with deep incisions and here and there small depressions were pecked out. It is true that on one side it was possible to choose three depressions that might stand for eyes and mouth and that some deep cuts might represent a nose. But there were other lines and depressions which would not form any part of a face and similar lines and depressions appear on the other side, differently arranged.

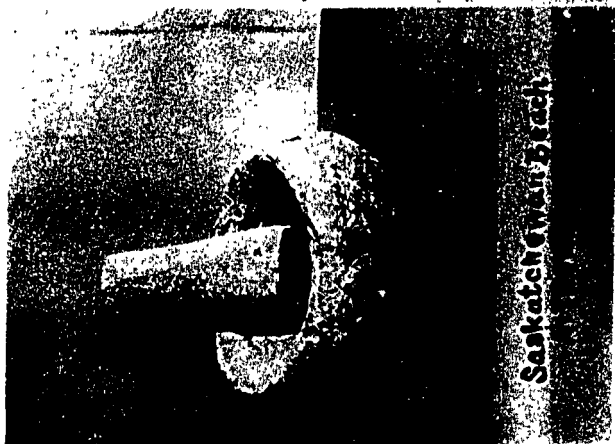
Many people looking at it will immediately say, "Oh, that is a stone they used for sharpening their stone tools." If that were true, then it must have been a permanent community sharpener, for, being about six inches thick and about eighteen inches long, it was too heavy to be carried around very much. Again, if it was a sharpening stone the presumption would be that the grooves would be produced by rubbing tools of bone or stone on it. What sense would there be in rubbing across a former groove and jarring your hand every time the tool passed over the previous groove? Furthermore, why should a person choose a very hard, fine-grained stone which would not be very abrasive when a hard sandstone would be so much better, and why have a big community rubbing stone when it was possible to have a private one like that pictured in Fig. 43?

If a person wished, for instance, to sharpen a stone axe he would rub it on a flat surface and not in a deep groove which would be more apt to dull the edge. Rubbing small bone tools like an awl or needle would never produce a groove an inch deep and an inch

**Fig. 71**



**Snowdy Springs 14 in.**



**Saskatchewan beach**

wide in such a hard stone. If it were a rubbing stone, why would they want the saucer-like depressions? If anything had been rubbed in these depressions it would have erased the marks of pecking. I think we must dismiss this idea as absurd.

If this is not a rubbing stone it must have been made at great expense of labor as a monument to commemorate something. An examination of the picture will reveal that there are combinations of lines forming several figures like a St. Andrew's cross or a St. George's cross, and one figure consists of a square with each side projecting past the corner successively around the square, making something like a swastika or windmill.

I showed this remarkable stone to several old Indians, but most of them followed the lines with their fingers, looked wise and finally shook their heads and admitted that they didn't know anything about it. A friend who was looking on thought they knew more than they wanted to tell. Finally I got another old Indian who was an American Indian in the double sense. He had married a Canadian squaw and was living with his wife's tribe and was tolerated by the superintendent of the reserve because his wife was a good squaw. He knew all about it. He said the stone was a boundary stone and that the big cross was the death sign threatening death to any other tribe crossing the boundary. He said that other markings recorded a battle in which so many were killed and a number of young maidens taken prisoner. These afterwards escaped and returned home by a devious route. "I'll write it all out for three dollars." He wrote a fine signature and gave his address, "via" so and so. I may have misjudged him but I saved my money, thinking I could write a good story myself for three dollars. However, I give it here for what it is worth.

I am inserting this illustration in the hope that it may meet the eye of someone who really knows something about it and can tell whether it is runic writing or whether it means anything at all.

\* \* \* \* \*

And now it is time to write "finis", and I do so hoping that this little work may travel to distant places on the continent, and that wherever it goes some reader may find a new idea or confirmation of an old one and at least some item of interest concerning the life and progress of early man on this continent



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